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Report of Committee
on
College Entrance Requirements
July, 1899

Appointed by Departments of Secondary Education and
Higher Education at Denver Meeting
July, 1895

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Giff M.F.V.

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NATIONAL EDUCATIONAL ASSOCIATION

LOS ANGELES, CAL., July 13, 1899.

To the Department of Secondary Education and the Department of Higher Education of the National Educational Association:

The committee appointed by your honorable bodies in July, 1895, to study the question of college-entrance requirements has the honor to submit the following report.

— A. F. NIGHTINGALE, *Chairman.*

— WILLIAM H. SMILEY, *Secretary.*

added in 1897 GEORGE B. AITON.

— J. REMSEN BISHOP.

X JOHN T. BUCHANAN.

X PAUL H. HANUS.

X BURKE A. HINSDALE.

added in 1897 RAY GREENE HULING.

added 1897 EDMUND J. JAMES.

— WILLIAM CAREY JONES.

X JAMES E. RUSSELL.

CHARLES H. THURBER.

added in 1897 H. B. FINE

X Nicholas

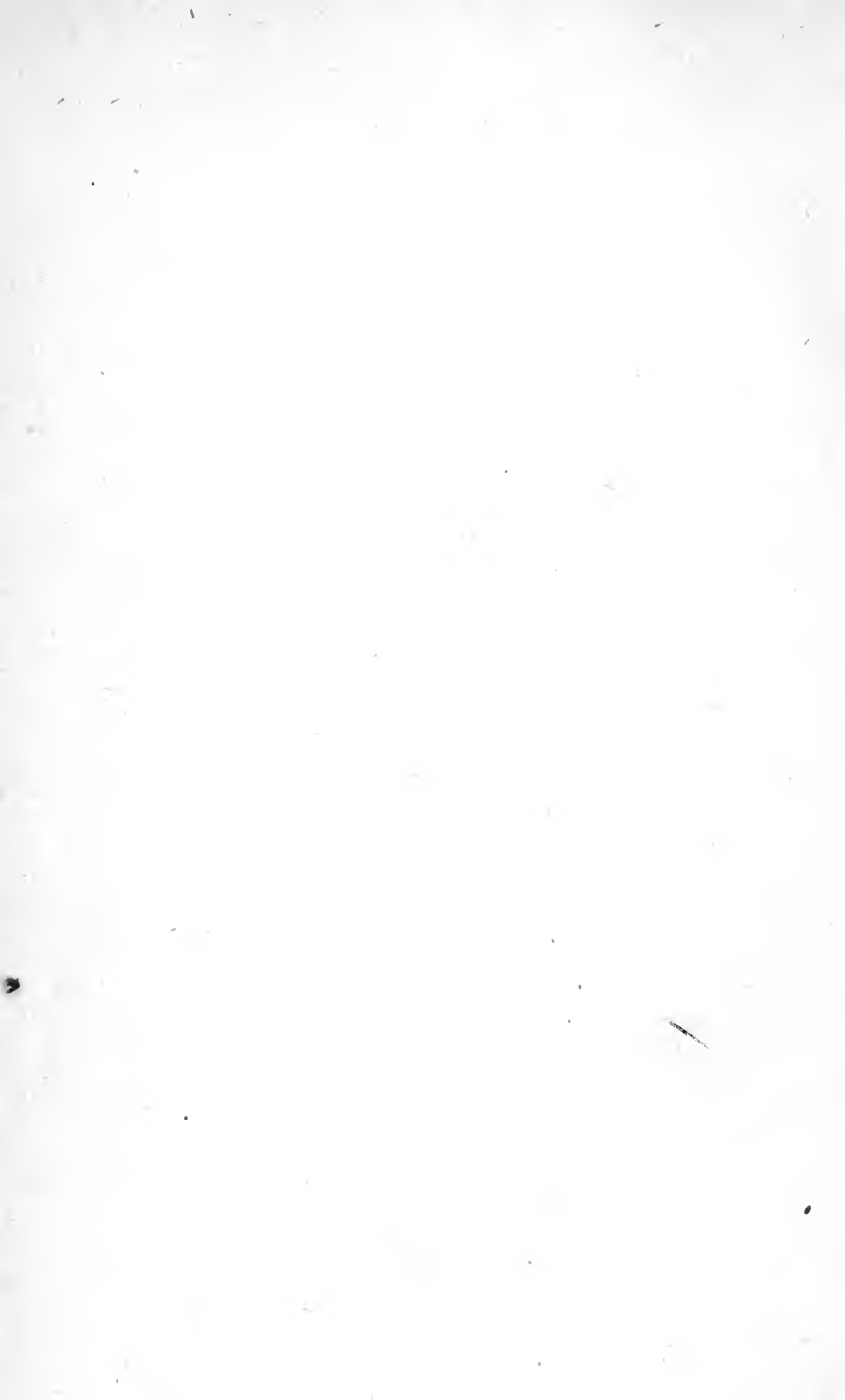
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(see pg 6 and 11)



REPORT OF THE COMMITTEE ON COLLEGE-ENTRANCE REQUIREMENTS

PART I

To the Department of Secondary Education and the Department of Higher Education of the National Educational Association :

The committee appointed by your honorable bodies to study the question of college-entrance requirements, for the purpose of harmonizing the relations between the secondary schools and the colleges, to the end that the former may do their legitimate work, as the schools of the people, and at the same time furnish an adequate preparation to their pupils for more advanced study in the academic colleges and technical schools of the country, submits the following report :

HISTORICAL SKETCH

At the meeting of the Department of Secondary Education of the National Educational Association at Denver, in 1895, a paper was read by Professor William Carey Jones, of the University of California, on the subject, "What Action Ought to be Taken by Universities and Secondary Schools to Promote the Introduction of the Programs Recommended by the Committee of Ten ?" Discussion of this paper led to the motion for the appointment of a committee to report a plan of action on the basis of Professor Jones' paper.

The committee presented the following report :

WHEREAS, The most pressing need for higher education in this country is a better understanding between the secondary schools and the colleges and universities in regard to requirements for admission ; therefore

Resolved, That the Department of Secondary Education appoint a committee of five, of which the present president shall be one, and request the appointment of a similar committee by the Department of Higher Education, the two to compose a committee of conference, whose duty it shall be to report at the next annual meeting a plan for the accomplishment of this end, so urgently demanded by the interests of higher education.

This resolution was unanimously adopted, and the result communicated to the Department of Higher Education, from which the following reply was presently received :

Secretary Thurber.

DEAR SIR : The Department of Higher Education has arranged to have a committee appointed to co-operate with the Committee on Secondary Education in regard to requirements for admission into colleges and universities.

Very truly,

JOSEPH SWAIN,
Secretary.

requirements of admission in the *School Review* for June, 1896, seems to indicate a wide divergence of opinion, which we believe does not really exist. The discussions of recent years, the admirable report of the Committee of Ten, and the agitation it has provoked, the deliberations of the various associations formed to bring about unity in diversity, all point to a wise and happy solution of this vexed problem.

The results of the conferences held at Columbia College are encouraging in the extreme (*Educational Review*, May, 1896). It is the most advanced step in the right direction which has yet been taken.

These conferences took on a local color, but the unanimity of their conclusions presages the feasibility of national unity on this same matter.

The secondary schools are the schools of the people, and the people have demanded, and in still more effectual ways will demand, that their courses must be practical, beneficial, disciplinary. The sciences no longer knock at the doors for admission. They have been admitted, and a larger and still larger place will be provided for them.

Physiography, biology, physics, chemistry, in all their elementary principles, and in their relations to man, whose duty and privilege it is to conquer nature and to make it subservient to his advancement and happiness, are no longer to remain in the category of informational studies, and suffer the opprobrium of being contrasted with the humane and the literary as the sole dispensers of intellectual culture. The sciences, as they are beginning to be taught in our best schools, add to the wealth of mind as well as to the stock of facts, and the colleges must recognize them as full equivalents for other work which they have hitherto demanded to the exclusion of science.

In pleading for uniformity in college-entrance requirements, there are a few vital facts which cannot be ignored: First, the triple function of the public high school, viz., to equip pupils for the business of life, to give a proper training to those who will teach in the common schools, and to prepare for college. Secondly, a majority of our young people who go to college come to a decision late in their secondary course. Thirdly, every young man or woman who has successfully devoted at least four years to earnest study in a well-equipped secondary school should be admitted to any college in the country, whether such a pupil has devoted a greater part of his time to Latin, Greek, and mathematics, or to Latin, modern languages, and mathematics, or to Latin, mathematics, and the sciences, or to any other combination of studies which has developed his power and been in harmony with his intellectual aptitudes. To this end, secondary programs of study should be thoroly elastic and with varied electives, suited to the talents of the individual child; a college program should be still more elastic and with a larger number of electives. Every person will then find opportunities for the development of that power which will enable him with confidence to attack the problems of life which he wishes to help to solve.

The public high school can become a link in the golden chain of our American system of education only when the colleges begin where the best high schools leave off; otherwise the gap between the common school and the college must be filled by the private schools, patronized by the children of the rich, and the sons and daughters of the great middle class must be deprived of the benefits of a higher education because, forsooth, they have failed to fulfill some specific requirement of the college they would otherwise enter. I have faith, however, that these conflicting requirements will be harmonized, their incongruities removed, so that we may in the near future have a unified system of education, from the kindergarten to the graduate school of the university, which will give to every child, without let or hindrance, the right of way for such an education as will best develop the power with which, in a plastic state, he has been endowed by the Infinite Architect.

A conference of the committee with members of the committee of co-operation and others interested was held at Buffalo on Tuesday, July 7, 1896.

In the absence of Chairman Nightingale, who spent the summer abroad, Mr. W. H. Smiley presided. A committee, consisting of Dr. James E. Russell, Dr. Melvil Dewey, and Professor Elmer E. Brown, was appointed to draft a plan of work for the general committee for the year 1896-97.

This committee presented the following at the conference held on Wednesday evening, July 8, Dr. B. A. Hinsdale acting as chairman of the meeting :

PLAN OF WORK FOR 1896-97

It is within the province of the committee, according to the resolution passed at the Denver meeting, to investigate existing college-entrance requirements and to report on ways and means of securing such uniformity in extent and method as will be conducive to the best interests, both of higher and of secondary education. The first step in investigation of existing requirements has been taken; in our opinion the program of the ensuing year should be chiefly as follows :

1. The committee should invite the active co-operation of associations already organized for the study of such problems; it should appoint representative subcommittees of specialists interested in the various subjects; it should ascertain the views of individual institutions—secondary schools, colleges, and universities—all with a view to the ultimate determination of what should constitute a normal requirement in each of the subjects set for the admission to college.

2. To this end it is recommended that the requirements be considered in the following groups : English, classical languages, modern languages, history, mathematics, and sciences.

3. Within the several groups special attention should be given to what should constitute a year's work in each subject (e. g., first-year French; second-year French, physics, chemistry, etc.); or, as may be preferable in some groups, what should constitute the "elementary" and what the "advanced" requirements, and, in general, the constitution of entire courses of study in the separate subjects.

4. It is recommended that a schedule of options or equivalents within the various groups, or between separate groups, be prepared.

5. The committee should make special effort to secure a more satisfactory method of admission to college. The views of the associations, subcommittees, and institutions (above referred to) should be sought as to the best pedagogical means of testing the work done in preparation for college.

6. All partial reports should be submitted to the committee as early as possible, that a tentative report may be prepared for discussion at the next annual meeting of the National Educational Association.

7. The Departments of Higher and Secondary Education and of Science should be requested to make this subject a special order in their program for the meeting of 1897.

8. It is evident that the work outlined cannot be done without the expenditure of a considerable sum of money. This committee should urge upon the Departments of Higher Education, of Secondary Education, and of Science the necessity of petitioning the Board of Directors of the National Educational Association for an appropriation, to be made at as early a day as practicable, sufficient to complete the work.

General discussion of the report, as it was read seriatim, followed, and it was finally adopted as reported by the committee. At the joint meeting of the two departments on the following day it received the unanimous approval of the large body of representatives of secondary and higher education in attendance.

Professor West, of Princeton College, and Professor Kelsey, of the University of Michigan, expressed the opinion that the American Philological Association would be willing to co-operate with the joint committee by presenting at a later stage classical programs prepared by the association. The members of the committee accepted gratefully and unanimously this suggested help, and on motion of the secretary an invitation was extended to the Philological Association, by unanimous vote of the two departments, to prepare a report on Greek and Latin. The invitation was accepted by the Philological Association, which proceeded to make an investigation of remarkable thoroughness and efficiency. The report of its committee (Professor Thomas Day Seymour, of Yale University, chairman) is presented in Part II of this report. The co-operation of the Science Department of the National Educational Association, tendered thru its president, Professor Bessey, was also gladly accepted. The reports of several committees appointed by this department also appear in Part II.

In the autumn of 1896 Chairman Nightingale sent a request to the American Historical Association to appoint a committee to prepare a report on the scope and place of history in the secondary schools, with model courses of study for the same. A committee of seven was appointed, with Professor A. C. McLaughlin, of the University of Michigan, as chairman. Its most excellent report is presented herewith in Part II. Professor C. H. Thurber attended the meeting of the eastern branch of the Modern Language Association of America at Cleveland in December, and the chairman of the committee met with the western branch at St. Louis at the same time. As a result, a committee of twelve was appointed by this association, with Professor Calvin Thomas, of Columbia University, as chairman, to prepare a report on German and French, with model courses of study for secondary schools. Its very exhaustive report is also to be found in Part II.

A second preliminary report of the committee was presented at the meeting of the National Educational Association at Milwaukee, July, 1897, which was printed by courtesy and without expense to the committee in the June, 1897, number of the *School Review*. We quote the following from the report presented by the chairman at that time :

The committee, sensible of its responsibilities, and sensitive that no means were provided for their proper discharge, has labored, with a zeal fed by its intense interest in the problem, to make a commendable advancement along all lines. Every educational association in the country dealing in any respect with secondary-school and college work has given this question a prominent place upon its program. Educational papers and magazines have abounded with articles on this subject. The secular press has not been remiss in its instruction to the public, and never in the centuries of our educational history has there been a tithe of the interest awakened that now exists in bringing about that harmony which ought to, and eventually must, prevail between elementary, secondary, and higher education in this republic of free schools, of free opinions, and of universal suffrage.

There must be the closest affiliation between the secondary schools and the colleges. This can be brought about only by the adoption of a plan that shall be consistent with what the secondary schools can do, and what the colleges must have. It is not, however, a question of compromise or of expediency; it is rather one of psychology, or, to use a rational term, of common sense and justice. All omens point to a successful issue. One after another the old idols are broken. The giants that stood in the path and said to every student, "Let him who enters here" leave all behind but Latin, Greek, and mathematics, are growing limp and lifeless. Requirements for admission are being leveled up; wide options are to be allowed; the element of value in preparation is to be a time element; Harvard, Cornell, Vassar, University of Michigan, University of Chicago, and Leland Stanford, Jr., are unfurling their banners of freedom. There is already a path blazed thru the thicket and jungle of conservatism and tradition, and before the twentieth century dawns in its glory there will be a broad highway thru which a pupil may walk unfettered, amid attractive associations, from the kindergarten to a degree at the end of the postgraduate course of the university, and still will the people of the future be able to say, "There were giants in those days."¹

At a meeting of the committee at the Pfister Hotel it was decided to request from the joint departments the privilege of adding four members to the committee. The privilege was granted, and the balloting resulted in the choice of Professor H. B. Fine, of Princeton University, and Dr. Edmund J. James, of the University of Chicago, to represent the Department of Higher Education, and of George B. Aiton, inspector of high schools, state of Minnesota, and Ray Greene Huling, of the English High School, Cambridge, Mass., to represent the secondary schools. These gentlemen accepted, and have since acted with the committee. At this conference it was also decided to ask the National Educational Association for an appropriation to enable the committee to finish its work, which had thus far been prosecuted at individual and private expense. A subcommittee was appointed for the purpose, and the directors voted to appropriate \$500, provided the funds of the association would permit.

Another year passed, and it was learned only at the meeting at Washington, July, 1898, that the money had been voted. During the winter the chairman requested the American Mathematical Association to prepare a report on the subjects in which it was especially interested. The request was too late for the general association, but the Chicago branch was empowered to appoint a committee to study the matter and to report. Professor J. W. A. Young, of the University of Chicago, was chairman. He labored with commendable zeal, sent out circulars, called several conferences, and two or three drafts of a report were prepared, and one, which we print in Part II, was presented.

¹ "And, lastly, public sentiment among those who have the schools in charge must devise some way by which all grades of schools, from the kindergarten to the college, shall be so correlated that there shall be a straight and open pathway from the lowest to the highest—with no hurdles to jump over and no hoops to jump through—along which free-acting children may be led by teachers acting freely within the necessary limits of relativity."—(George H. Martin, in his *Evolution of the Massachusetts Public-School System*, D. Appleton & Co.; p. 276.)

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Efforts were put forth, in the meantime, to secure the elaborate reports which had been promised by the eminent committees of the different associations which were co-operating with the national committee, and when it seemed probable that all these reports would be ready, the chairman called a conference of the general committee in Chicago for April 13, 14, and 15 of the present year.

Thru the courtesy of Dr. William R. Harper, who welcomed the committee in a brief address, and thru the generous kindness of the Quadrangle Club, every facility in the way of rooms and entertainment was provided at the University of Chicago. The first session was held at the Haskell Museum, where the chairman presented a general outline of the work to be done. All other meetings — and there were three sessions a day for three days — were held at the Quadrangle Club. Subcommittees were appointed on the several subjects of study, and their reports were discussed and amended, or approved and passed. All resolutions were presented and debated in general session. To aid the Committee on Science and English, Dr. John M. Coulter, head of the department of botany, Dr. Alexander Smith, professor of chemistry, of the University of Chicago, and Mr. Charles W. French, principal of the Hyde Park High School, were invited to meet with the subcommittees. Their counsels were highly appreciated and of great value. Ten of the national committee and two of the advisory committee were present at all the sessions. Letters were received from the four absentees of the general committee, giving special and satisfactory reasons for their forced absence. Excellent letters, containing many valuable suggestions, were received from Professor Albert Bushnell Hart, Dr. John Tetlow, Dr. Melvil Dewey, Principal W. H. Bartholomew, Professor William P. Trent, Professor Edward H. Griffin, Dr. James H. Canfield, and Mr. Wilson Farrand. The reports that follow, both that of the regularly appointed Committee on College-Entrance Requirements and those of the special committees appointed by the eminent associations organized for the purpose of advancing the interests of higher education along special lines, are the result of four years of thought, study, and investigation. They contain not only the opinions of the scores of distinguished educators whose names are appended to the special reports, but they also embody the conclusions of conferences, institutes, and conventions, which have zealously studied this question since the meeting of the National Educational Association at Denver in July, 1895. They are submitted, therefore, with confidence that they must in a large degree meet with the approval of the better class of colleges and secondary schools of the country.

ENGLISH

The committee presents first the proposition that the study of the English language and its literature is inferior in importance to no study

in the curriculum. It offers all, or nearly all, the opportunities for mental training afforded by the study of any language, and introduces the pupil to the literature of his own tongue, which must always be the chief source of his own thought, inspirations, ideals, and æsthetic enjoyment, and must also be the vehicle of his communication with his fellow-men. Hence this study should be placed in a position at least not inferior to that allotted other languages.

The course of study in English should include two elements: the study of English literature, and the cultivation of the art of expression; to the end of securing, respectively, sympathetic and comprehensive appreciation of the writings of great thinkers, and the power to use language in a clear, logical, convincing, and agreeable manner. Such study, for the accomplishment of both of these aims, should include the reading of many works of literature carefully selected, the study of the principles of composition and literary style, and abundant practice in production, in obedience to the principles studied under the inspiration of the pleasurable reading of good books.

The subjects selected should be in themselves dignified and elevating, taken from the higher or spiritual environment of the pupil, as found actually in his school work, and from the environment of his common life.

The study of the principles of composition should include the following subjects: a study of words as to their origin and meaning; a study of the structure of the sentence and of the larger units of discourse—in other words, concrete logic; a study of the principles of effective literary composition, as illustrated in the various divisions of literature; and also a study of the æsthetics of literature.

These need not in all cases be taken up formally as grammar and rhetoric. Usually it is better that they be studied in connection with literature and composition; but they should not be neglected. A pupil completing a course in English, or any specific portion of such a course, should be able to appreciate literature that falls within the possibilities of his comprehension, and to express logically, and in good style, such thoughts as he is capable of expressing at all. This should be the test.

Furthermore, the committee recommends that the two departments, literature and composition, be pursued side by side thruout the entire secondary-school course, and that they be so related thruout that one shall, in so far as possible, supplement and strengthen the other.

We desire to express approval of the following principles:

1. That there should be no difference between the regular courses and the college-preparatory courses in English in secondary schools;
2. That the college requirements in English should be distributed thru the four years.

In accordance with the above, we recommend the following suggestive outline of a course of study in English, the main points of which are in

accordance with the paper presented by Mr. W. F. Webster, of Minneapolis, and thoroly discussed at the Washington meeting of the Secondary Department of the National Educational Association :

FIRST YEAR — FIRST HALF

LITERATURE — NARRATION.

Narratives in both prose and verse, some brief, some of greater length, selected from such authors as Scott, Poe, Tennyson, Lowell, Whittier, Browning, Stevenson, and Kipling, representing various qualities of style, which qualities should be clearly pointed out to the pupils. The selections should be well within the comprehension of the pupils. The following plan of study is suggested :

1. *Meaning of the author.*

- a) Outline of story.
- b) Incidents in the lives of characters.
- c) Central idea and purpose of the story.

2. *Method of the author.*

- a) Does the interest center in the incidents or in the characters ?
- b) Is there a climax ?
- c) Do all the parts converge to this point ? (unity).
- d) Are the parts arranged in a sequence ? (coherence).
- e) Is the interest sustained ?

3. *Style of the author.*

It is suggested that here special attention be given to the movement of any selected passage (verbs).

COMPOSITION — NARRATION. To give spontaneity.

1. *Incidents.* (It is better that at this stage of study pupils compose tales without regard to plot.)

- a) Selection of material (unity).
- b) Arrangement of material (sequence, coherence).
- c) Proportion in treatment (mass, emphasis).

2. *External form of composition.*

Heading, margins, indentations of paragraphs.

3. *Grammar study.*

Review of principles. (Attention should here be called especially to the sentence as the unit of thought. Attention should also be given to inflection of pronouns and verbs, agreement of verbs and pronouns.)

Concord.

Punctuation.

Capitalization.

4. *Figures of speech*, based on likeness.

Simile.

Metaphor.

Personification.

FIRST YEAR — SECOND HALF

LITERATURE — DESCRIPTION.

Examples of description.

Examples illustrative of various styles of descriptive literature, in both prose and verse, should be selected from such authors as Hawthorne, Lowell, Gray, Goldsmith, Poe, Blackmore, Burroughs, and Kipling. Some of the books should be studied in class,

others assigned for home reading. In some cases it is well to study in class portions of a work of considerable length and require that the remaining portion be read at home.

The same general plan of study as that suggested for the first half of the year should be followed.

1. *Meaning of the author.*

2. *Method of the author.*

a) Does he retain his point of view? (unity).

b) Does he arrange details in order? (coherence).

c) Are they treated in right proportion? (emphasis).

3. *Style of the author.*

a) Words that produce pictures.

b) General words or specific words.

(It is well here to introduce a somewhat thoro study of words, as to origin and meaning, and of the analysis of words into their various elements.)

COMPOSITION — DESCRIPTION.

Aim, accurate expression. Subjects to be individual rather than general. They should be such objects as the pupil has seen, or is able to reproduce from imagination, concerning which it is possible for him to find adequate expression.

Treatment. The selection of details should be decided by the purpose of description. A point of view should be secured and held (unity).

Details should be arranged with some plan (coherence).

Arrangement and proportion of details should effect a purpose (mass, unity).

Technical subjects — *paragraph structure*.

Having secured in the previous half year a clear conception of the sentence and its arrangement, the combining of sentences in paragraphs can now be properly considered.

This consideration should include not merely the construction of paragraphs, but such arrangement of the sentences within them as shall secure clearness and proper emphasis.

Words. Continuation of the analysis of words and of the study of their history. Selection of words which give pictures (rhetorical figures). Specific words and general terms compared. Nouns, adjectives, verbs. A review of etymology regarding them.

SECOND YEAR — FIRST HALF

LITERATURE — EXPOSITION. Lyrical poetry.

Attention should be given to the study of those authors who have not merely told stories well and described objects well, but have expressed ideas in such a way as to make them convincing. Many selections of lyrical poetry also can be properly studied. Poems should be selected that are not too difficult of comprehension, that have an easy, flowing movement, and that are pleasing because of the freedom of their rhythmical qualities, as well as for the beauty of the thought. The following points may profitably be considered, under the headings already indicated:

1. *Meaning of the author*. Indicate the main thesis and subordinate propositions, their proper dependence and their relative importance (especially for exposition).

2. *Method of the author*.

a) Does he stick to his point? (unity).

b) Does he pass from the known to the unknown? (coherence).

c) Does he arrange the material to get the highest effect? (emphasis).

3. *Style of the author*. His use of connectives, conjunctions, relatives, adverbs, and phrases.

a) How does he obtain clearness?

b) Are his figures of speech and comparisons effective?

COMPOSITION — EXPOSITION. To encourage logical thinking and adequate expression.

Terms. Definitions.

Propositions.

1. Clear statement of proposition (key sentence).
2. Discussion as limited by the above.
 - a) What shall be included? (unity).
 - b) What shall be excluded? (unity).
 - c) In what order? (coherence).
 - d) In what proportion? (emphasis, mass).

SECOND YEAR — SECOND HALF

LITERATURE — EXPOSITION (*continued*). Poetry.

Suggestions made for the first half year should be here followed.

COMPOSITION — EXPOSITION.

Paragraph structure.

Study of paragraphs introduced the preceding year should be here followed with much practice.

A further study of connectives, and methods of transition.

Clauses.

Sentences. Periodic, loose, balanced.

To make pupils think a whole sentence before writing, insist on many periodic sentences. Compare the effect of long and short sentences.

Study of argumentation.

THIRD YEAR — FIRST HALF

LITERATURE. Introduction of character study, as exemplified in the novel. Poetry.

Novels, representing the different classes of fiction, for study both in school and at home. It is best to select novels not too long, and those that have abundance of incident.

Meaning of author.

Method of author.

Is the interest centered in plot or in the characters? Do the details work toward a climax? (unity).

Are the parts arranged in the best order? (coherence).

Style of author. As exemplified in his power to picture, to phrase, to draw characters, to arouse emotions.

The principles already studied should be continually reviewed as occasion occurs. Attention, however, may now be drawn to some of the refinements of composition. Continually increasing attention should be given to the best word for the place in every instance. Pupils should now be led to express themselves, not only with accuracy, but with some degree of elegance. It is well to call attention to the fact that the best authors use the simplest language, and that for English-speaking people words of Anglo-Saxon origin are commonly best. Care should also be given now to the arrangement of words, with the special view to securing force, smoothness, and elegance. Subjects of composition should be drawn to a considerable extent from the literature studied. It is also well to draw upon the other subjects of the curriculum for suitable topics, particularly history and science. Stories, episodes, conversations upon various topics, descriptions of scenes, character sketches, are good topics. It is also well that occasionally outlines of compositions upon the various subjects be prepared by the students.

THIRD YEAR — SECOND HALF

LITERATURE — DRAMA.

It is suggested that the literature of this half year be the drama, with special reference to Shakespeare. Attention should be given to the grammatical construction, especially to the difference between the plot and a narrative poem. In this connection it might be well to read some such critical studies of poetry as may be found in the works of Matthew Arnold and James Russell Lowell.

COMPOSITION.

Composition work of this half year may very properly be largely studies of characters of the drama, and the critical treatment of the various plays studied, from the student's point of view. This last phrase is important; the student should not merely read the plays, but should study them, and should give expression, not to the teacher's nor the critic's view, but to his own.

FOURTH YEAR

During this year literature should be studied with due attention to the history of its development. It is well to select for study some works which will test to the full the student's mature power. Pupils should now learn to meet new difficulties, both in thought and vocabulary.

The technical work of this year, to take the place of the grammar and rhetoric suggested for the earlier years, should be based largely upon the study of the history of the English language.

COMPOSITION.

The composition work of this year should be varied in topic and style. Some compositions of considerable length should be required. These should be upon subjects that will employ the student's most mature thought. Considerable time should be spent in their preparation, and they should be examined and criticised step by step by the teacher. At the end of the course in English each student should be required to submit a final essay or thesis upon some literary subject, to show to a degree his appreciation of the work done, and to illustrate as fully as possible his power of expression.

The committee recommends that four periods per week for four years be allotted to the work in English, and that at least one-half of this time be devoted to the department of literature.

The committee recommends that a suggestive list of books, graded and classified, be offered, not less than thirty for each year, from which list selections shall be made by the various schools, not less than five books of average length, or a total of 1,000 pages, covering both class work and home reading, to be required for each school year.

LIST OF BOOKS

The following list, as the committee states, is simply suggestive. Principles and preferences, local and literary, will always govern in the choice of books which teachers will urge their pupils to read and which they will prefer for class study. The main purpose is to inculcate a taste for the best reading in the young people of today, to help them to form the reading habit, and to guide them into the way of a critical study of authors. We believe there should be in our secondary schools, and in the requirements for college in English, no hard and fast rule as to just what books

should be read or studied. Uniformity may be excellent, but equivalents should be accepted. The list below contains all that the joint conference recommends both for general reading and for careful study. Many more are given. They are graded and may be readily classified. They are submitted, not as the best list, for there is no such, but as a collection of good books worthy to be read, worthy to be studied, and among which we believe a sufficient number may be found which will interest, instruct, and entertain the pupils of every secondary school.

FIRST YEAR

- 1 *Snow Bound* - - - Whittier
- 2* *Tales of Shakespeare* - - - Lamb
- 3 *Wonder Book* - - - Hawthorne
- 4 *Tanglewood Tales* - - - Hawthorne
- 5* *Jungle Book*, No. 1 - - - Kipling
- 6* *Jungle Book*, No. 2 - - - Kipling
- 7 *Betty Alden* - - - - Austen
- 8 *Sharp Eyes* - - - - Burroughs
- 9* *Autobiography of Franklin* - Franklin
- 10* *Tom Brown at Rugby* - - - Hughes
- 11 *Story of a Bad Boy* - - - Aldrich
- 12* *Nicholas Nickleby* - - - Dickens
- 13 *Two Years before the Mast* - Dana
- 14* *Bunker Hill Speeches* - Webster
- 15* *Sketch Book* - - - - Irving
- 16* *Washington's Rules of Conduct, Farewell Address, and Lincoln's Inaugural and Gettysburg Speech*
- 17* *Man Without a Country* - - - Hale
- 18 *Hans Brinker* - - - - Dodge
- 19 *Ivanhoe*¹ - - - - Scott
- 20* *Quentin Durward* - - - - Scott
- 21* *Tales of a Wayside Inn* - - - Longfellow
- 22 *The Story of the Indian* - - - Grinnell
- 23 *Tales of New England* - - - Jewett
- 24 *Being a Boy* - - - - Warner
- 25* *Merchant of Venice*¹ - - - Shakespeare
- 26 *The Choir Invisible* - - - - Allen
- 27* *Life of Washington* - - - Irving-Fiske
- 28 *Cuore* - - - - - De Amicis
- 29 *Back of the North Wind* - McDonald
- 30 *Macaulay's or Chesterfield's Letters* -

SECOND YEAR

- 1 *Vision of Sir Launfal*¹ - - - Lowell
- 2* *Lady of the Lake* - - - - Scott
- 3* *Marmion* - - - - - Scott

- 4 *Lyrics and Sonnets* ("Cry of the Children") - - - Mrs. Browning
- 5* *The Lake Poets*, Wordsworth, Coleridge, Southey
- 6 *Julius Caesar*¹ - - - Shakespeare
- 7 *Translations from the Iliad* (Books I, VI, XXII, XXIV)¹ - - - Pope
- 8 *Last of the Mohicans*¹ - - - Cooper
- 9* *Tales of a Traveller* - - - Irving
- 10 *The War of Independence* - - - Fiske
- 11 *Young Folk's Plutarch* - - - Kaufmann
- 12* *Apology of Socrates* - - - Plato
- 13 *Back Log Studies* - - - Warner
- 14 *Brave Little Holland* - - - Griffis
- 15 *Julius Caesar* - - - - Froude
- 16 *Little People of Asia* - - - Olive T. Miller
- 17* *Bulfinch's Mythology* - - - Hale
- 18* *Twice Told Tales* - - - Hawthorne
- 19 *John Halifax* - - - - Muloch
- 20* *Kenilworth* - - - - Scott
- 21* *Tale of Two Cities* - - - Dickens
- 22 *Rab and his Friends* - - - Dr. John Brown
- 23 *The Private Life of the Romans*
Preston and Dodge
- 24 *Hero Tales from American History*
Roosevelt and Lodge
- 25 *Girls and Women* - - - Chester
- 26 *Shakespeare the Boy* - - - Rolfe
- 27 *Innocents Abroad* - - - Mark Twain
- 28 *Rudder Grange Stories* - - - Stockton
- 29 *The Hoosier Schoolmaster* - - - Eggleston
- 30 *Ranch Life and the Hunting Trail*
Roosevelt

THIRD YEAR

- 1* *Richard II.* - - - Shakespeare
- 2* *Twelfth Night* - - - Shakespeare
- 3 *Macbeth*² - - - - Shakespeare
- 4* *Legends of the Alhambra* - - - Irving

* In the list of home reading books suggested by the joint conference on English, April, 1899.

¹ College requirements for general reading and composition work, as recommended by the joint conference on English.

² College requirements for careful study, as recommended by the joint conference on English.

5	<i>Silas Marner</i> ¹ - - - - Eliot	3	<i>Critical Period of American History</i> - Fiske
6	<i>Critical Essays</i> - Lowell and Matthew Arnold	4	<i>American Commonwealth</i> (abridged) - Bryce
7	<i>Lectures and Speeches</i> , Wendell Phillips	5	<i>Essay on Burns</i> ¹ (and <i>Poems</i>), Carlyle
8	<i>Wulf the Saxon</i> - G. A. Henley	6	<i>Nineteenth Century</i> - Mackenzie
9	<i>Political Ideas</i> - - - Fiske	7	<i>Life of Charlotte Brontë</i> - Gaskell
10	<i>The Young Carthaginian</i> - Henley	8	<i>Abraham Lincoln</i> - - - Schurz
11	<i>The Roman and the Teuton</i> - Kingsley	9	<i>How the Other Half Lives</i> - Reis
12	<i>Minor Poems</i> ² - - - Milton	10	<i>Judith Shakespeare</i> - - - Black
13	<i>Vicar of Wakefield</i> ¹ - Goldsmith	11	<i>Egyptian Princess</i> - - - Ebers
14*	<i>Essay on Friendship</i> - Emerson	12	<i>The Destiny of Man</i> - - - Fiske
15	<i>Kidnapped</i> - - - Stevenson	13	<i>Warren Hastings</i> - - - Macaulay
16	<i>Our Old Home</i> - - - Hawthorne	14*	<i>Henry Esmond</i> - - - Thackeray
17	<i>Prophet of Great Smoky Mountain</i> - Craddock	15	<i>Princess</i> ¹ - - - Tennyson
18	<i>Dombey and Son</i> - - - Dickens	16*	<i>Pride and Prejudice</i> - - - Austen
19	<i>John Brent</i> - - - Winthrop	17*	<i>Marble Faun</i> - - - Hawthorne
20*	<i>Lorna Doone</i> - - - Blackmore	18*	<i>David Copperfield</i> - - - Dickens
21	<i>Paradise Lost</i> ¹ (Books I, II) - Milton	19	<i>Les Misérables</i> - - - Hugo
22*	<i>Westward Ho!</i> - - - Kingsley	20	<i>Rime of the Ancient Mariner</i> ¹ - Coleridge
23*	<i>Prue and I</i> - - - Curtis	21	<i>Shakespeare's England</i> - - - Winter
24*	<i>The Newcomes</i> - - - Thackeray	22*	<i>Sesame and Lilies</i> - - - Ruskin
25*	<i>Autocrat of the Breakfast Table</i> , Holmes	23	<i>On Style</i> (Part I) - - - Spencer
26	<i>Uarda</i> - - - Ebers	24	<i>Speech on Conciliation with America</i> ² - Burke
27*	<i>Lord Clive</i> - - - Macaulay	25*	<i>Conduct of Life</i> - - - Emerson
28	<i>Ben Hur</i> - - - Wallace	26	<i>Milton and Addison</i> ² - Macaulay
29	<i>Palamon and Arcite</i> ¹ - Dryden	27*	<i>Walden</i> - - - Thoreau
30	<i>Roman Life in the Days of Cicero</i> - Church	28	<i>My Summer in a Garden</i> - Warner
FOURTH YEAR			
1*	<i>Hamlet</i> - - - Shakespeare	29*	<i>Essay on Manners</i> - Emerson
2	<i>Sir Roger de Coverley Papers in the Spectator</i> ¹ - - - Addison	30*	<i>Romola</i> - - - Eliot

FOREIGN LANGUAGES AND LITERATURES

The committee recommends that the courses of study prepared by the committees of the American Philological Association and of the Modern Language Association of America, as printed in Part II, be adopted, with the suggestion that the word "selections" be placed after "Sallust's *Catiline*" in the tables on pp. 73, 74.

HISTORY, CIVICS, AND ECONOMICS

The committee recommends that our colleges and universities should accept as a unit for admission a year's work in economics, including under this head a course in elementary political economy, supplemented by adequate instruction in commercial geography and industrial history. It

* In the list of home reading books suggested by the joint conference on English, April, 1899.

¹ College requirements for general reading and composition work, as recommended by the joint conference on English.

² College requirements for careful study, as recommended by the joint conference on English.

approves the courses of history recommended by the committee of the American Historical Association, with the following proviso, namely: that it is highly desirable that one year of United States history and civil government should be furnished by the secondary schools, and be accepted as a requirement for admission by all colleges and universities. It will be noted in the report of the American Historical Association that it is possible to omit the course in United States history. The committee desires to reaffirm "the principles of college requirements" as given in the report of the committee of the American Historical Association, if it understands correctly the statement in regard thereto. In order to avoid misapprehension, however, the committee feels that it is important to make its understanding of these principles explicit.

As to the meaning of the first principle as formulated there appears no uncertainty, and we approve of it heartily, viz.:

1. That the fundamental scope and purpose of the secondary schools should be regarded.

But the formulation of the second principle, especially when taken in connection with a note thereto, seems open to misconstruction. The principle is stated as follows:

2. That such elasticity be allowed that schools may fit for college and adapt themselves to local environments and local needs.

The note is as follows:

It does not seem wise, etc. (p. 127).

The aim of the Committee on College-Entrance Requirements is to set forth such a series of interchangeable units of substantially the same value as will meet with acceptance everywhere. Local conditions and traditions may give rise to differing groups of college-entrance requirements, but within these groups the several units should have the same value.

That is to say, one unit of history taught in one place should equal one unit of history taught in another place, even tho the subject-matter of the instruction varies.

Such an arrangement will tend to secure greater flexibility of the curriculum, and, at the same time, to preserve all legitimate claims of variation growing out of differences of environment, as well as to break down such claims as are not real.

MATHEMATICS

The committee begs to submit the following report on mathematics. It will be found that our recommendations are in the main in agreement with those of the mathematical conference of the Committee of Ten and with those contained in the appended report of the committee appointed by the Chicago Section of the American Mathematical Society. These reports contain many suggestions relative to the teaching of mathematics

in which we heartily concur, but which we have not thought it necessary to repeat.

I. We recommend that the course in arithmetic required of all students be limited, roughly speaking, to the following topics: the four fundamental operations for integers, and common and decimal fractions; the most important weights and measures; percentage and its application to simple interest; and that it be completed in the sixth grade. An admirable statement of the reasons for this recommendation is to be found in the report of the mathematical conference of the Committee of Ten, and they need not be repeated here. The recommendation involves the omission of commercial arithmetic from the prescribed course in mathematics. If it be deemed necessary, an elective course in this subject may be offered at some convenient time during the high-school period, and in connection with it a course in bookkeeping.

We concur with both committees in urging that the instruction in arithmetic be enlivened by numerous applications to problems which are of immediate interest to the pupil, or can be made so by simple explanations—notably problems of elementary mensuration and physics.

The most important practical end to be secured by the study of arithmetic is skill in accurate reckoning with integers and common and decimal fractions. That the pupil may not lose this skill, after having once acquired it, we deem it indispensable that he be given frequent practice in numerical reckoning thruout the school course. Algebra, metrical geometry, and the physical sciences afford abundant opportunities.

II. We suggest the following arrangement of the course in mathematics from the seventh to the twelfth grades inclusive, assuming the length of the recitation period to be at least forty-five minutes:

Seventh grade—Concrete geometry and introductory algebra	-	4	periods
Eighth grade—Introductory demonstrative geometry and algebra	-	4	"
Ninth and tenth grades—Algebra and plane geometry	- -	4	"
Eleventh grade—Solid geometry and plane trigonometry	- -	4	"
Twelfth grade—Advanced algebra and mathematical reviews	-	4	"

1. The algebra of the seventh and eighth grades should, at the outset, be mere literal arithmetic. But we are of the opinion that, by limiting the working material to very simple polynomials and fractional expressions, and to equations of the first degree with numerical coefficients, the four fundamental operations for rational algebraic expressions, simple factoring, and the solution of equations of the first degree in one and two unknown quantities may be taught effectively in the course of these two grades.

Young students enjoy reckoning, and elementary algebraic reckoning will interest them far more than the complexities of commercial arithmetic. The principles of the subject must, of course, be presented concretely, and unnecessary generalizations should be carefully avoided. Simple

problems which can be solved by aid of equations of the first degree should be introduced as early as possible. The sooner the pupil appreciates the power of algebraic methods, the sooner will the subject attract him.

2. Concrete geometry may be taught with advantage earlier than the seventh grade. But even in that case we deem it wise to devote half the time given to mathematics in the seventh grade to this subject.

3. The amount of demonstrative geometry which should be given in the eighth grade will depend somewhat upon the knowledge of concrete geometry which the pupil has by that time acquired. In any event, we should question the wisdom of undertaking any systematic study of a text-book of demonstrative geometry in this grade. An important object of the instruction should be to awaken an interest in the demonstrative process, and that may be best accomplished by confining the pupil's attention to the propositions which his concrete work has taught him to appreciate, and which admit of easy demonstration. The theorems which relate to the congruence of triangles, parallel lines, the angle-sum of the triangle, parallelograms, and some of the simpler and more useful properties of the circle, and many of the problems of construction, belong to this category; the propositions which necessitate the consideration of incommensurables do not.

4. We recommend that the time allotted to mathematics in the ninth and tenth grades be divided equally between algebra and plane geometry; and that the course in algebra include: (a) a more systematic and comprehensive study of the topics treated in the introductory course of the seventh and eighth grades, with a thoro drill in factoring, highest common factor, least common multiple, and complex fractions; (b) radicals and fractional exponents, and quadratic equations in one and two unknown quantities; (c) ratio and proportion, the progressions, the elementary treatment of permutations and combinations, the binomial theorem for positive integral exponents, and the use of logarithms.

There is time enough in this course for the topics (c), and they seem to us to belong here rather than in the advanced algebra of the twelfth grade, because of their elementary character and general interest. The acquisition, thus early, of a practical acquaintance with logarithms in particular would be of great advantage to the pupil in his work in metrical geometry and physical science. The slight theoretical knowledge of logarithms which it requires is easily within his reach; for the theorems relating to the logarithm of a product, a quotient, a power, and a root are mere restatements of theorems regarding exponents with which he is already familiar, and it is certain to interest him, for it appeals, as few other topics in algebra can, to the utilitarian instinct which is so strong in young students.

5. By "advanced algebra" we mean the remaining topics which are to be found in an ordinary text-book of "college algebra," viz., the

elementary treatment of infinite series, undetermined coefficients, the binomial theorem for fractional and negative exponents, the theory of logarithms, determinants, and the elements of the theory of equations.

III. In solid geometry, plane trigonometry, and advanced algebra the schools should insist upon the same amount of work and aim at the same standard of scholarship as the best American colleges require in their courses in these subjects.

IV. When a student who is preparing for college does not intend to offer advanced algebra, he should defer some or all of the mathematics of the eleventh grade until the last year of his school course, or be given opportunity for mathematical reviews in that year.

V. We recommend that the several mathematical subjects count toward satisfying the requirements for admission to college, as follows:

(a) Elementary algebra, as defined in II, 4	-	-	-	-	-	-	-	-	1½ units
(b) Advanced algebra	-	-	-	-	-	-	-	-	½ unit
(c) Plane geometry	-	-	-	-	-	-	-	-	1 "
(d) Solid geometry	-	-	-	-	-	-	-	-	½ "
(e) Plane trigonometry	-	-	-	-	-	-	-	-	½ "

SCIENCES

We recommend that "nature study" of the kind described in an appended report, Part II, be made an integral part of the school work preceding the high-school period.

We recommend the following arrangement of courses in natural and physical science in the high-school period itself:

First year	-	-	-	-	-	-	-	-	Physical geography
Second year	-	-	Biology: botany and zoölogy, or botany, or zoölogy.						
Third year	-	-	-	-	-	-	-	-	Physics
Fourth year	-	-	-	-	-	-	-	-	Chemistry

and that the time allowance for each of these courses be at least four periods a week thruout the year.

This allowance seems necessary to entitle these subjects to recognition (as one unit each) in a list of college-entrance requirements.

So far as the reports in our possession have enabled us to do so, we have indicated in some detail what the character of these courses in science should be. Unfortunately, this has been impossible in the case of physics and zoölogy,¹ and we recommend that the Committee on Physics and Zoölogy appointed by the Natural Science Section of the National Educational Association be again requested to supply detailed descriptions of suitable school courses in these sciences.

The committee also makes the following general recommendations: In our opinion it is important that the last two grades that now precede the high-school course should be incorporated in it, and, wherever

¹The report on zoölogy is inserted in Part II, but came too late for inspection by the committee.

practicable, the instruction in those two grades should be given under the supervision of the high-school teacher.

This recommendation really means a six-years' high-school course of study, and therefore that the qualifications of the teachers of the seventh and eighth grades shall not be inferior to those of the teachers in the remaining high-school grades.

PHYSICAL GEOGRAPHY

The committee approves the report of the Subcommittee on Physical Geography appointed under the auspices of the National Educational Association, appended to this report; and it accordingly recommends:

1. That this committee adopt the definition of physical geography given in the report of the Subcommittee on Physical Geography appended to this report, namely, "the physical environment of man;" and that its principal themes are, the earth as a globe, the atmosphere, the ocean, and the lands, all appropriately limited in scope and difficulty by the time at the disposal of the course and the capacity of high-school pupils, and all taught "with the motive and the special point of view defined above;" and that "the distribution of organisms should not be taught with reference to zoölogical and botanical classifications, but in exposition of the organic environment of man, and as itself controlled by physiographic and other influences."

2. That in public high schools and other secondary schools physical geography be taught in a course occupying not less than four periods a week during one school year; and that this course should be placed in the ninth grade (first high-school year, in the present organization of most public schools).

3. That the course in physical geography should include a large amount of field and laboratory work; and lectures, discussions, and text-book study should, so far as practicable, be related to such work. Note-books should not be an end in themselves; they should be kept in such a way as to emphasize the spirit and method of scientific work.

4. That the course in physical geography outlined in the foregoing propositions, when satisfactorily completed, count as one unit toward satisfying the requirements for admission to college.

BIOLOGY

The course in biology in the second year of the school course may consist either of a half year of botany and a half year of zoölogy, or of a whole year in either science.

BOTANY

1. That in public high schools and in preparatory schools botany be taught in a course occupying not less than one-half year, and preferably one year, with at least four exercises a week.

2. That this course in botany include a large amount of individual laboratory work, supplemented by as much field work as possible, done by the pupil under the careful direction of a competent instructor, and recorded by the pupil in the form of careful drawings and descriptions in a permanent notebook.

3. That such laboratory work, including the keeping of the notebook, occupy approximately one-half of the whole botany assignment, double periods of time being given to each laboratory exercise.

4. That the course also include instruction by text-book, informal lectures, and frequent quizzes, elucidating and enforcing the laboratory work, or dealing with matter not touched upon in that work, to the end that the pupil may gain a comprehensive and connected view of biological principles, as exemplified by plants, rather than merely a knowledge of a few disconnected facts.

5. That a pupil who has successfully completed such a course in botany as that here described may offer it for one-half or one unit of work in satisfaction of the requirements for admission to college.

6. That for entering students who have thus satisfied a definite requirement in botany, and who continue the subject in college, there be provided a suitable sequel to the school course in continuation of the study; such students being in no case placed in the same class with beginners.

7. The standpoint of the entire course should be that of plants as living things and at work, details of the structure being entirely subordinated. Observation should be directed to the most obvious facts, those which form a fitting background for subsequent study, and which easily enter into the subsequent experience of those who do not study further. Professional terminology and difficult and expensive apparatus should be avoided as much as possible. Constant and accurate drawing should be insisted upon as the only means of securing and recording definite observation. Great care should be taken not to overload the student with details or to demand too exhaustive a study of single forms. Clearness and variety are essentials in such work.

ZOÖLOGY

The committee presents no special report on zoölogy, but refers to the report on this subject made by the committee appointed by the Department of Science. This report is printed in Part II, and will be found to be in essential harmony with the report on botany.

PHYSICS

Your committee suggests that an effective working basis for a secondary-school course in physics would be attained by planning such a course substantially in accordance with the following propositions:

1. That in public high schools and schools preparatory for college physics be taught in a course occupying not less than one year of daily

exercises, more than this amount of time to be taken for the work if it is begun earlier than the next to the last year of the school course.

2. That this course of physics include a large amount of laboratory work, mainly quantitative, done by the pupils under the careful direction of a competent instructor and recorded by the pupil in a notebook.

3. That such laboratory work, including the keeping of a notebook and the working out of results from laboratory observations, occupy approximately one-half of the whole time given to physics by the pupil.

4. That the course also include instruction by text-book and lecture, with qualitative experiments by the instructor, elucidating and enforcing the laboratory work, or dealing with matters not touched upon in that work, to the end that the pupil may gain not merely empirical knowledge, but, so far as this may be practicable, a comprehensive and connected view of the most important facts and laws in elementary physics.

5. That college-admission requirements be so framed that a pupil who has successfully followed out such a course of physics as that here described may offer it toward satisfying such requirements.

CHEMISTRY

Your committee approves the report of the majority of the Committee on Chemistry of the Natural Science Department of the National Educational Association, appended to this report, and it accordingly recommends :

1. That in the public high schools and in preparatory schools chemistry be taught in a course occupying not less than an assignment of four exercises a week for a year ; more than this amount of time to be taken for the work if it is begun earlier than the third year of the school course.

2. That this course in chemistry include a large amount of individual laboratory work, including some quantitative exercises, done by the pupil under the careful direction of a competent instructor and recorded by the pupil in a notebook.

3. That this laboratory work, including the keeping of the notebook and the working out of the results from laboratory observations, occupy approximately one-half of the whole chemistry assignment ; double periods of time being given to each laboratory exercise.

4. That the course also include instruction by text-book, demonstration, with qualitative and quantitative experiments by the instructor, and frequent quizzes, elucidating and enforcing the laboratory work, or dealing with matters not touched upon in that work, to the end that the pupil may gain, not merely empirical knowledge, but, so far as this may be practicable, a comprehensive and connected view of the most important facts and principles in elementary chemistry.

5. That a pupil who has successfully followed out such a course of chemistry as that here described may offer it for one unit of work in satisfaction of the requirements for admission to college.

6. *The subject-matter* should include the chemistry of both metals and non-metals. More detailed study should be confined to a restricted list of elements and compounds—say twelve of each—other substances being drawn upon for broadening the course, when required for illustration of principles or for classifying facts.

Attention should be given to the atmosphere, manufacturing processes, and familiar substances.

The treatment.—The selection should be rational, such facts being preferred as can be classified or as lead most directly to principles.

The theoretical matter, including the theory of solutions, equilibrium, etc., should include all that can help in co-ordinating and elucidating the facts.

The presentation should be inductive, as far as possible. The principles and theories should not be stated as dogmas, but should follow the facts and supply the explanation for which a need has already been felt.

Symbols and equations should not be introduced until after quantitative experiments, and then in the character of abbreviated expressions of the results of quantitative work. Such experiments should, therefore, appear fairly early in the course.

Formal qualitative analysis should not form a part of a one-year course.

The laboratory work must be intelligent, and every effort must be made to avoid the mechanical tendency to which it is liable.

RESOLUTIONS

The following resolutions adopted by the committee serve to put in concrete form the leading principles that guided the committee itself in its consideration of the special reports, and which in its judgment are to be considered as first principles in the adjustment of relations between secondary and higher schools. These resolutions, embodying such principles, are what the committee offers in lieu of any ideal program or curriculum. The resolutions that follow are to be considered as covering, not every principle that the committee might wish to see recognized, but only those which could be discussed and agreed to in the limited time at the committee's disposal.

— I. *Resolved*, That the principle of election be recognized in secondary schools.

In this resolution the committee merely indorses a practice already very common in secondary schools. The tendency toward wide option in college-entrance requirements is too obvious to be ignored. The student is no longer limited to a single group of prescribed subjects, which alone secure admission to college study. Not only are many different courses offered by most colleges, but there is increasing latitude of choice

in entrance requirements for each of these courses, and it seems probable that this latitude will continue to increase. The committee would agree, for instance, where one year of history is required, that the particular subject in history should not be specified, but that either one of the four typical year's courses recommended by the historical committee should be accepted. In modern languages an option between French and German now generally exists. In science, while the disposition is now to make physics a required subject where only one science subject is offered, yet the committee indorses the tendency to allow election among the other sciences, and, aside from physics, to specify the requirement by amount rather than by subject. At the same time free and unrestricted election is not suggested, but, on the contrary, an election made after the most careful consideration of the matter by the pupil, the teacher, and, if possible, the parents. The administration of such an elective system makes extensive demands upon the insight, tact, and time of the principal, who will, in most cases, be the adviser from the teacher's standpoint. The work of the principal under a properly administered elective system must inevitably be greatly increased by much personal consultation with students and study of the nature and capacity of individual students. The administration of the secondary school at present makes large demands upon the principal along lines that were practically unknown to his work but a short time ago. The principals, the committee believes, are ready to accept these new duties, and to discharge them with fidelity and skill, but it ought to be recognized that in order to do so they must be relieved of mere routine functions. The personal direction of individual students is the most delicate and responsible part of the principal's work, requiring the highest intellectual and moral qualities. It is the duty of school boards to see to it that principals possessing these qualities should be relieved of so much of the drudgery of administration as will give them opportunity to perform properly this highest work.

II. *Resolved*, That the requirements for admission to technical schools should be as extended and thoro as the requirements for admission to college.

If students are admitted to technical schools with lower entrance requirements than those set by the colleges and universities, three consequences follow: (1) that the students enter on the technical studies at an earlier age; (2) that they have less general culture than is provided by a high-school course; (3) that they leave the high school before the completion of that course. It seems to the committee that the foundation of general culture provided by the full high-school course is none too much for students whose after-studies are to be almost exclusively technical, and yet who, in their professional careers, will be called upon to fill positions where not only technical knowledge, but also general education, and especially the ability to write with ease and precision, will be important elements in their success. Nor does it seem to the committee

desirable that students should be admitted to technical studies at an earlier age than that at which they are admitted to the studies of the college course. Technical training is essentially professional training. If a student is able to enter a technical school a year earlier than he can enter a college, and complete his technical studies in four years, he is ready to enter on his professional work at a date three years beyond the time when he would have left the secondary school after completing its full course. The student who chooses the profession of law or medicine, for example, who seeks the best preparation for his career, completes the high-school course, adds to it a four-years' course in college, and to that at least a three-years' course of professional study. He, therefore, enters upon his professional work with ^{four}six years' more training than the technical student has. There seems to be no valid reason for this very great difference between the best preparation for the so-called learned professions and corresponding preparation for the technical professions.

The difficulties of the secondary schools in fitting students for college are now, and have in the past been, very great, on account of the different specifications from institutions which require theoretically the same amount of preparation. The technical school introduces an additional complication into the problem, and one of very serious import, in that its requirement is not only different in amount from that of the colleges, but also different as to specification. The tendency of this requirement is to develop a special class of schools, such as separate manual-training schools and elementary technological schools, whose function is to prepare students for the higher technical schools. This differentiation, however, does not seem to be in accord with the fundamental principles and ideals of the American educational system. Such a differentiation in secondary schools necessarily limits the field of their usefulness to those students who can reach the specialized institution. Such specialized institutions are apt to be remote and difficult of access, whereas the high school is almost everywhere accessible.

The condition to be desired is that in which a four-years' high-school course shall prepare the student for advanced study along the lines of his choice, whether literary or technical. It is believed by the committee that it is the general purpose of the technical schools to advance their requirements as rapidly as possible to meet the standard outlined above. There can be no question that the lower and differing requirements for technical schools are becoming a disturbing factor of considerable importance in secondary-school work; nor is it doubtful that this factor would be removed if the requirements for admission both for colleges and for technical schools were made substantially equivalent. It is, of course, not suggested that they should be identical in subject; nowhere does the committee assume that such identity of requirement is desirable.

III. *Resolved*, That the teachers in the secondary schools should be college graduates, or have the equivalent of a college education.

The time is past when a superficial knowledge of a variety of subjects, coupled with a knack for giving instruction and some administrative ability, can be considered sufficient qualifications for teaching in our high schools. In many departments of study work is now being done in these schools as advanced as that done in the first year of the college course. And there is no better reason in the school than in the college for intrusting this work to the care of teachers who lack adequate special training for it.

Of course, it is not proposed that able teachers already connected with our schools should be displaced because of the lack of a college education, nor implied that young men fresh from our universities are qualified for the administrative responsibilities of the high-school principal. The most responsible positions in high-school work will naturally be intrusted to those alone who have been tested in less responsible positions—in the departmental work of the school. Our proposition is mainly concerned with the appointment of teachers to do this departmental work.

Our colleges and universities are now turning out each year numbers of young men and women of liberal training who are eager to teach subjects which they have been pursuing with enthusiastic devotion and distinguished success. Many of them have personal qualities which should fit them admirably for teaching. Surely, it is reasonable to urge that the best teachers for our high schools may be chosen from among them. Not only have they the requisite special knowledge, but they have given evidence that they possess the love of learning, lacking which the teacher is likely sooner or later to lose enthusiasm for his work and become a drudge.

Fortunately, the policy of recruiting the high-school force from college graduates already prevails in many of our great cities, and there is little doubt that the practice will soon become general. It will react most happily on the higher education of our people by enlarging the field of work open to college men and women, and will be a potent influence in elevating our secondary schools to a position as dignified as that now held by the secondary schools of France and Germany.

IV. *Resolved*, That we favor a unified six-year high-school course of study beginning with the seventh grade.

The most necessary and far-reaching reforms in secondary education must begin in the seventh and eighth grades of our schools. Educators agree that these grades must be enriched by eliminating non-essentials and adding new subjects formerly taught only in the high school. These reforms require the highest pedagogic knowledge and the most efficient supervision. In our opinion these problems can be solved most quickly and surely by making the seventh and eighth grades parts of the high

school, under the immediate direction of the high-school principal. Recent attempts to teach Latin and German in these grades have not met with the success to which they are entitled, on account of the lack of qualified teachers and competent supervision. The improvements in the mathematical schedules in the grades have not been given a chance to show their value, because the teachers have lacked the technical training and the breadth of view absolutely essential to good teaching in the introductory courses of algebra and geometry. Science study is now acknowledged to have a place in the grades, yet slow progress has been made in producing educational results, largely because the grade teacher has been poorly prepared to teach the subject, and the leading scientists of the country, in their efforts to circumvent this obstacle, have failed to agree on a suitable course of study for the grades.

The proper adjustment of these studies in a unified high-school course would add much to the effectiveness and solidarity of secondary education. The seventh grade, rather than the ninth, is the natural turning-point in the pupil's life, as the age of adolescence demands new methods and wiser direction. Six elementary grades and six high-school, or secondary, grades form symmetrical units. The transition from the elementary to the secondary period may be made natural and easy by changing gradually from the one-teacher regimen to the system of special teachers, thus avoiding the violent shock now commonly felt on entering the high school. The seventh-grade pupils, if thought necessary, could still be taught and given individual attention by one teacher in all but one or two subjects which require the services of specialists. The personality of the teacher and her intelligent direction of the individual student should be insisted on and made more effective than at present. Under the system proposed an inefficient teacher in the seventh or eighth grade would do less harm in blasting bright intellects and in turning able students away from higher study. The inspiration afforded by a well-equipped high-school principal and by a special teacher in language, science, or mathematics would do much to retain desirable students in the high school, thus raising the educational standard of American citizenship. Statistics show that the number of students leaving school at the end of the sixth grade is comparatively small, while the number is very large at the end of the eighth grade. By the proposed change, the students in the seventh and eighth grades would gradually gain the inspiration of the high-school life, and the desire to go farther in the languages and sciences which they have already begun under favorable conditions. The result would doubtless be a more closely articulated system, with a larger percentage of high-school graduates.

From an administrative point of view, the six high-school grades should eventually be in one building. As far as statistics are accessible

on this point, the experiment of placing these grades in the high-school building has been successful, resulting in better scholarship and a greater percentage in the number of students entering the ninth grade. The gradual change to this system would probably lead to the establishment of a larger number of less expensive high schools, thus placing the "people's college" nearer their homes without additional expense to the taxpayer, but with a saving in money and strength to students attending the high school.

V. *Resolved*, That in the interpretation of the recommendations of this committee concerning the subjects to be included in the secondary-school program and the requirements for admission to college, for which credit should be given, it is distinctly understood that all secondary schools will not offer opportunities for the pursuit of all these subjects, and that the colleges will select those only which they deem wise and appropriate.

The very large secondary schools containing six hundred or more pupils are, perhaps, the only ones which can offer all the studies which the committee enumerates as legitimately belonging to a four-years' secondary program. No pupils in these schools can pursue them all, for no study should occupy less than one year, and no pupil should carry more than four regular studies which occur four periods a week. The larger the school, the more elective can be the curriculum, without any considerable extra expense. The smaller schools must content themselves with more rigid programs, but the welfare of the individual pupil should be the first consideration, consistent with the limitations of public funds. Every secondary school worthy the name can offer one, and in most cases two, foreign languages, two years at least of mathematics beyond arithmetic, one or two sciences, one or two years of history, of which one should always be American history with civics, and a full course in English. More languages, more sciences, more mathematics should be added as numbers and funds warrant. The colleges should be very explicit in regard to constants, and equally so in regard to electives and equivalents, and all requirements should be so elastic that a pupil will not find himself, after a good four-years' preparatory course of study, debarred from entering the college of his choice.

VI. *Resolved*, That, while the committee recognizes as suitable for recommendation by the colleges for admission the several studies enumerated in this report, and while it also recognizes the principle of large liberty to the students in secondary schools, it does not believe in unlimited election, but especially emphasizes the importance of a certain number of constants in all secondary schools and in all requirements for admission to college.

Resolved, That the committee recommends that the number of constants be recognized in the following proportion, namely: four units in foreign languages (no language accepted in less than two units), two units in mathematics, two in English, one in history, and one in science.

The recognition of elective courses in secondary schools is no longer a controversial subject; all educators acknowledge educational values, but these educational values are relative rather than fixed, and depend not so

much upon the subject-matter of the study and its intrinsic power to train and develop and strengthen mental fiber as upon the skill of the teacher who is to elucidate, illuminate, and make attractive such study, and upon the innate endowments, the heredity, and acquired talents of the student. It is believed, therefore, that there should be no absolutely fixed and inelastic requirements for admission to college, except so far as they may be within correlated groups. If, for instance, a college permits a modern language to be substituted for Greek, and the pupil presents in addition a year of mediæval and modern history in place of a year in ancient history, the former should be regarded as a full equivalent for the latter. The same may be said of science. If a pupil finds it more to his taste to pursue the study of biology, or even botany, a year in the place of physics or of chemistry, he should not be embarrassed by the refusal on the part of the college to accept the substitute.

Secondary schools, therefore, should be allowed to arrange their programs in accordance with local environment, the demands of their constituency, and the tastes of their pupils; and when the work in any study is well done and a sufficient amount of it has been acquired, and this work is consistent with that done along other lines, it should be accepted by the college. The committee believes there should be constants in every secondary school. It is difficult, however, to fix these to the satisfaction of all. The committee would, therefore, have the constants in the foregoing resolution regarded as suggestive rather than unalterable. Few colleges, few committees, few boards of education will dissent from the proposition that every pupil should have at least one year of history, one year of some science taught by laboratory methods, and two years of English, including composition and literature; some will argue that there are those who cannot master geometry, and yet, if one has the scholarship which will warrant the expenditure of four years in college, he will have the ability to assimilate algebra and geometry to the extent of two full years of work. The question of foreign languages is a mooted one, and yet most intelligent people will agree that one foreign language—and that, too, pursued four years—or two, each followed two years, is valuable, if for no other purpose than to give the pupil an enlarged and a more appreciative idea of our incomparable English. These constants are submitted, therefore, as important for every secondary school.

VII. *Resolved*, That the colleges will aid the secondary schools by allowing credit toward a degree for work done in secondary schools, beyond the amount required for entrance, when equal in amount and thoroughness to work done in the same subjects in college.

In many, and perhaps most, colleges the plan suggested in the above resolution is already in effect. Such recognition of school work by the colleges will tend to raise the estimation in which the school is held by the community. It will also directly assist the school in its natural effort

to induce students to continue their studies in college, for if a student has, on finishing the school course, already one-third or a half year or more of work to his credit that may be counted toward a college degree, this fact constitutes a great incentive for going on with college work. Furthermore, it frequently happens that a student at the end of the last school year has one or two subjects to complete in order to finish the school course. This may happen for a variety of reasons, among which change of school and ill-health are most common. Should the student wish to go to college, two courses are open—either to enter college with conditions, or to remain an additional year in school so as to complete the course. But if the second alternative is adopted, the student, while making up deficiencies, can and should carry one or two additional studies, in order that the year's work may be complete. If these studies cannot be counted for college credit, there is temptation on the part of the student to do light work, and to take only the subjects required, with a tendency to acquire indolent habits of study. If the additional subjects above those required for completing the school course are accepted by the college toward a degree, a strong incentive is offered the student to do the best work possible, and the danger of falling into indolent habits is avoided. This college credit, furthermore, puts into the hands of the school principal one of his strongest arguments for inducing the pupil to remain an additional year at school, so that he may not enter college with conditions. It seems to the committee that there can be no question that the mutual interests of both school and college will be best subserved by making the class of conditioned students as small as possible.

VIII. *Resolved*, That for students who have met a definite requirement in any science, and who continue the subject in college, it seems to us desirable that there be provided a suitable sequel to the school course in continuation of the study; such students being in no case placed in the same class with beginners.

It seems to be a somewhat common practice among colleges to accept a subject for entrance, but not to give it credit after the student has been admitted. This is illustrated specifically by the case in which physics is accepted as an entrance requirement, but not required of all students. Student A comes to college and presents a year's good work in physics, done in a high school or academy, as one of his entrance subjects. Student B has no physics, but presents something else, which is accepted as an entrance equivalent. In college, however, both A and B take precisely the same course in physics, one having had a year's work, with laboratory experiments, the other not having studied the subject at all. This practice is justified by the colleges on two grounds: (1) that the year's work in the high school really, after all, amounts to nothing, and (2) that it is impossible to make two different classes. The latter argument may be disregarded. In some cases it doubtless is true that the teaching force of

the college does not permit the organization of two separate classes, and there is no argument with necessity. But the other argument, that the year's work in the high school is not of any value to the college, is refuted by the college itself, in two ways: (1) by accepting this year's work as of full value for entrance to the university, and (2) by allowing university credit for exactly the same sort of work in other subjects, as, for example, in Latin, French, or German. The student who offers French or German for admission to college is not put into the same college classes in either of those subjects with students who have not presented them for entrance, but is always put in an advanced class, and remains there until he has shown his unfitness. The practice of combining in the same college class students who have had previous high-school instruction and those who have not is most common in the sciences, and while physics has been specified above, all of the sciences that are accepted as entrance requirements share equally in this practice. The effect cannot be otherwise than disastrous upon science teaching in the high school, for if a student goes to college with a year's course in science and finds that work totally disregarded by the college authorities, he can but infer that the school work is without value. He is likely to send the report back to the school and other students will be deterred from taking the course in science, knowing that they will have to do the work over again when they go to college later. The effect on the student himself who, having had a year's work in science, is required to go again over the same ground, to a large extent, alongside of students who have no previous knowledge of the subject, is most unfortunate. Experience totally disproves the argument that such work is in the nature of a thoro review and is, therefore, beneficial to the student. On the contrary, it is distasteful and tiresome. The student is likely to rely upon his previous knowledge and slight the work as much as possible. It frequently happens, therefore, that the student with the entrance equipment attains no better rank in his class than his fellow who entered without previous knowledge. This does not show, as has been supposed, that the high school is of no value, but it conclusively proves that such repetition is destructive of interest and calculated to foster careless habits of work. The adjustment of college work to a wide range of elective entrance requirements certainly presents many difficulties, but it seems to the committee that, when the colleges have taken the step of offering this wide range of electives, they cannot well stop there, but are bound, so far as possible, to adjust the college work so that the students may not have to repeat in any branch work that has already been done, and presumably, by the college's own recognition of it, well done, in secondary schools.

IX. *Resolved*, That we approve of encouraging gifted students to complete the preparatory course in less time than is required by most students.

In this resolution the committee desires to approve a principle, rather than to recommend a definite plan for the application of that principle. Gifted students should be allowed special opportunities quite as much in grades below the secondary school as in the secondary school itself, and it seems probable, indeed, that the saving of time may be expected most advantageously in the lower grades. The subject of the grading of pupils below the secondary school is, however, not in the province of this committee.

In laying out a course of study the average student must be the basis of reckoning, but in the schematization of educational work there is constant danger that the interest of the individual student may not be sufficiently considered. There are students who must take more than the allotted time in which to complete the preparatory course, while there are others who can easily finish the course in less than the schedule time. This can be done, too, without overpressure and consequent injury to health. It is a truism that some students acquire much more readily and easily than others. Modern educators do not accept the doctrine of Helvetius, that all men are by birth endowed with the same natural capacities. Instead of cramping and confining the more gifted students, it is the duty of the secondary school to discover them and to furnish them every opportunity for progress in their work. There are difficulties of administration, caused chiefly by the time schedule, which sometimes cannot be overcome; but it seems to the committee that students have a right to expect that the school officers will use their best efforts to overcome these obstacles, and, so far as is consistent with good administration, offer to the students full opportunity for progress according to their individual capacities.

X. Resolved, That in general we recognize in schools the admissibility of a second year in advanced work in the same subject, instead of a second year in a related subject; for example, two years in biology, instead of one year in biology and one year in chemistry, where local conditions favor such an arrangement.

Sound pedagogical reasons might be advanced in favor of the general proposition that two years' work in one scientific subject is better than one year's work in each of two scientific subjects. This principle is, indeed, generally held in regard to language studies. But in adopting the above resolution the committee was influenced mainly by other considerations. In the smaller schools it is not usually possible to have more than one teacher for science. It can hardly be expected that a teacher will be equally able in physics, chemistry, botany, zoölogy, physiography, and the other sciences that enter into the course. With the general trend toward the adoption of departmental work in the schools and the gradual introduction of university-trained specialists into the corps of teachers, there are more and more teachers who are especially capable and well trained in one special branch of scientific study. Where

a school possesses such a teacher, better results in scientific training may, and probably will, be obtained by permitting specialization in the field of the teacher's particular interest. Again, in not all schools is it possible to have a number of scientific laboratories. A school may be able to equip one laboratory adequately, but would find it quite impracticable to equip two or three. Since laboratory work is now regarded as an indispensable part of scientific instruction, two years in one science with full laboratory facilities might properly be regarded as better than one year's work in the same science with laboratory facilities plus a second year's work in a different science with laboratory facilities either very inadequate or totally lacking. Where a laboratory is equipped for one year's work in science, the additional expense for equipping it for a second year's work in the same science is inconsiderable as compared with the expense of equipping another laboratory for a different science. For these reasons, mainly, it seems to the committee wise to recognize the substantial equivalence of two years' work in one science for a year's work in each of two different sciences. Some schools would be able to provide a year's work in one science and two years' work in one other science—a total of three years in science. The committee believes that the aim to be attained is a certain amount of scientific training of the proper and adequate sort, but that, so far as combination of subjects to make up this total is concerned, local conditions may properly be a determining factor.

The committee is not to be understood as recommending, as a rule, a second year of study in the same subject, but only that such an arrangement is admissible or desirable under certain conditions.

XI. Resolved, That it is desirable that colleges should accept, in addition to the year of United States history and civil government already recommended, at least one-half year of intensive study of some period of history, especially of the United States.

To recommend collegiate recognition of the "intensive study" of history in the secondary schools is only to ask the same recognition for history that is already accorded to other subjects. "Advanced requirements" in languages, mathematics, and science have long been recognized; no one is likely to assert that an advanced requirement in history is less desirable than such a requirement in other subjects. But the chief reason for this recommendation is, of course, the belief that the secondary school will gain a valuable extension of its course of study—an important source of culture for the best students in history, in particular, but also for all interested pupils.

The elementary course in history gives many glimpses of unexplored fields of knowledge that invite further inspection, and suggests many problems of social development that can be dealt with only incidentally at the time. Intensive study of history permits single pupils, or, at least, groups of pupils, to explore some of these fields, and to attack some of

these suggested problems. To gratify the interest in historical study thus aroused is to promote the instinct of true scholarship, and hence afford an admirable preparation for college work.

In a word, intensive study in history affords pupils an opportunity to pursue a favorite subject beyond the usual elementary course in history with which they must otherwise be content. It is, accordingly, a valuable stimulus and a satisfaction to both teachers and pupils. But unless this intensive study can be recognized in college-admission requirements, few schools will be able to provide it.

XII. *Resolved*, That we recommend that any piece of work comprehended within the studies included in this report that has covered at least one year of four periods a week in a well-equipped secondary school, under competent instruction, should be considered worthy to count toward admission to college.

It is the opinion of the committee that a larger option ought to be allowed to high-school pupils in selecting the subjects which they desire to offer for admission to college than is accorded at present. It is felt that the adoption of this policy of permitting larger options lies in the interest of the colleges, and of college education, as well as of the high schools and of high-school education.

The acceptance of this larger option will make it possible for many high schools to prepare properly for college which cannot do so at present, and thus the number of possible college students may be considerably increased.

Many high schools find it impossible to offer one or another of the subjects required for admission to college at present, while they do offer instruction in subjects which there seems to be no adequate reason for excluding from the category of accepted branches.

It will thus become possible for many high schools to undertake the work of preparation for college without seriously impairing that other, and perhaps more necessary, work involved in answering the demands of the public for instruction in the specific subjects which the local public insists upon. This will, moreover, permit the individual high-school pupil a range of choice among the subjects which he may desire to offer, which will be only a legitimate recognition of the elective principle in the sphere of secondary education.

It will be noted that the recommendation of the committee in favor of a wider option in subjects is connected with this positive condition that such a subject must be pursued long enough to guarantee serious work, and that the high school must have adequate facilities for teaching the subject, and competent instructors to handle it.

It is felt that the acceptance of the proposed wider range of options, combined with the insistence upon such a method of treatment, upon such amount of time, and upon such facilities for teaching as will secure good educational results from a disciplinary and cultural point of view,

will have a pronounced influence in persuading high schools to adopt the principle of selecting a few subjects in which they can give adequate training, rather than the patchwork system of selecting very many subjects and giving only slight attention to each one, which prevails in so many of our American high schools. And it is believed that this will be a very valuable educational result, which might well compensate for any slight injurious effects which might possibly flow from allowing this wider option.

There is a general argument in favor of this plan which applies to the elective system in general, so far as it can be properly employed, namely, that the pupils themselves will take a greater interest in their work, will conceive a more earnest desire to attend the college and university, knowing that they have an opportunity to pursue there the studies which have interested and benefited them in the high school. It is believed that the limitation of this recommendation to studies included in this report makes the above recommendation an exceedingly conservative one, and one in which all college and high-school men can unite.

This proposition does not involve of itself, necessarily, the idea that all subjects are of equal cultural or disciplinary value, or even that the subjects here proposed are of equal or similar value. The acceptance of this recommendation does not, therefore, hold the committee to the espousal of any such doctrine, or the association, if it accepts the report and recommendation of this committee. It does involve, however, the proposition that, even tho there may be a difference in the disciplinary or cultural value of these subjects pursued under the conditions indicated, yet the advantages to our educational system of the adoption of this principle will be so great as far to outweigh any incidental disadvantage which may accrue from accepting as of equal value for college purposes the more or less unequal values represented by these studies.

It is certainly a further argument for the wisdom of this recommendation that it is directly in the line of all present movements in the educational field. All the leading associations of college and secondary teachers in the United States have recently expressed views similar to these incorporated in the recommendation. It would seem, therefore, as if the conditions in different portions of the country were so similar that we have here to do with a principle which is applicable to all sections of the United States.

XIII. *Resolved*, That it is desirable that our colleges and universities should accept as a unit for admission a year's work in economics, including under this head a course in elementary political economy, supplemented by adequate instruction in commercial geography and industrial history.

The present recommendation is really included in the preceding one, and we need not, therefore, spend very much time upon it.

It is worth noting, however, that this is an additional recommendation to those contained in the various reports by the Committees on History

and Civics, which from time to time have appeared of late in connection with our educational associations. It is the opinion of the committee that the subject of political economy, which is now taught in one form or another in very many of our high schools, is entitled by its importance, and by its disciplinary and cultural value, to a position in the programs of all high schools, and that, when it is a part of such a program, and is conducted during the entire year, in a school with proper facilities, and with properly qualified teachers, it deserves the same recognition as other subjects pursued under similar conditions.

It will be noted that the committee recommends that some attention be given to commercial geography and industrial history in connection with the work in elementary political economy, and that these three subjects be taken as one.

This recommendation is made because the committee feels that such a subject as this may easily become merely formal in the actual instruction in the schools, and that it should receive a concrete treatment which will be assured to a certain extent by linking it with the practical subjects having such an intimate relation to it as commercial geography and industrial history.

It appears to the committee that in a country like the United States, where all citizens are called upon to take sides in the discussion and decision of important economic questions, it is exceedingly desirable that the elements of economics should be included in the program of high schools for the sake of the pupils who may not go to college. And, following the general line of the recommendations of this report, it is urged that, when the subject is so taught as to secure adequate results for those who do not go to college, it will also be so taught as to entitle the pupil who pursues it to the privilege of offering it as one of his requirements for admission to college.

XIV. *Resolved*, That we recommend an increase in the school day in secondary schools, to permit a larger amount of study in school under supervision.

In presenting this resolution the committee is aware that there is a great divergence of custom in the length of the day in secondary schools, the number and length of recitation periods, the noon intermissions, and the time devoted sacredly to study within the schoolhouse. A few have two sessions, following the rule governing the elementary schools; some are from 8 A. M. to 1 P. M., and many from 9 A. M. to 2 P. M., with one-half hour at noon for a light lunch.

We appreciate the almost unanimous and perhaps enlightened opposition on the part of teachers to the proposition for a longer school day. The committee believes, however, that it is a subject for intelligent discussion, and that the weight of argument favors a longer day. The committee does not trace its convictions on this matter to the fact that

the German secondary schools are one-half longer in session than our schools, and no hardship seems to result.

There is no disposition to imitate European methods because they are European, but we believe it is easily demonstrable that it is in the class recitation and under the inspiration and instruction of the teacher, and not in the study hours at home, that the pupil acquires the bulk of his scholastic knowledge.

A very large majority of the pupils who attend our secondary schools are of the middle class, a very respectable minority are of the poorer class, and only a small fraction are from the homes of the rich.

In the cities and large towns the school buildings offer better conveniences for study than the homes; pupils of immature age do not know how to study, and need the guidance and direction of an intelligent and interested teacher; lessons should be learned largely in school in the quietness of rooms thoroly equipped for that purpose, in the midst of reference-books, maps, charts, pictures, and all of the paraphernalia incident to study; recitation periods should not be less than fifty minutes, instead of forty, as prevails in too many schools; there must be time for drawing, physical culture, vocal music, and laboratory practice.

The committee, therefore, recommends that the secondary-school buildings be open for pupils from 8 A. M. until 4 P. M., and that all who find it more convenient and attractive be encouraged to occupy the rooms for reading and study, and that as many teachers as are necessary remain to assist these pupils in the prosecution of their work.

The practice in some schools of having two sessions a day, with a long intermission at noon, is to be deplored. The committee especially disapproves of the plan recommended by some with a view to economy, but which we think false economy, of having two sessions with different sets of pupils for morning and afternoon, whether taught by the same or different teachers at each session. This method will require all study, all preparation of lessons, to be done at home, without the conveniences, the equipment, the inspiration of the school itself. It will destroy, in a large measure, the real function of the secondary school; it will lessen the interest of the pupils, and limit the influence of the teachers; it will separate children of the same families in the different years of the school; it will make the instruction less potent and the discipline more difficult; it will in every way tend to destroy the school as the real laboratory and workshop of the pupil.

NATIONAL UNITS, OR NORMS

The vocabulary of pedagogy is not as yet clearly differentiated in all of its branches, a fact which accounts for no little confusion in educational discussions. The words "curriculum" and "course of study," for example, are used synonymously to apply either to the entire range of

subjects pursued in a school, to the schematic arrangement of those subjects for an individual student, or to the quantum of any given subject, as mathematics or history. So we have the expressions, "high-school course of study," "high-school curriculum," "high-school course," the "Greek course" and the "course in Greek" (which may designate either a special schematic arrangement for the whole work of a pupil taking Greek, or specific work in Greek itself), "Latin course" and "course in Latin," etc., thru all the subjects. It is difficult to avoid the confusion which this inaccurate use of language makes almost inevitable.

The committee, for itself, adopts a definite terminology which will be used during this discussion. Three distinct terms seem to be needed : (1) *program of studies*, which includes all of the studies offered in a given school; (2) *curriculum*, which means the group of studies schematically arranged for any pupil or set of pupils; (3) *course of study*, which means the quantity, quality, and method of the work in any given subject of instruction.

Thus the program of studies includes the curriculum, and may, indeed, furnish the material for the construction of an indefinite number of curriculums. The course of study is the unit, or element, from which both the program and the curriculum are constructed.

With the construction of a curriculum, or of several curriculums, this committee has not dealt. A very large number of such schematic plans are already in print. It is difficult to decide, upon general principles, why one is better than another, and still more difficult to formulate a new one which shall be better than any other; nor does it seem to the committee necessary or desirable that such a work should be undertaken. Individual differences of opinion among principals and teachers, as well as the influence of local conditions and surroundings, have always been reflected in school curriculums, and it seems necessary that they always should be. Absolute uniformity in our secondary education thruout the country, or thruout any considerable section of it, is so improbable that it is a waste of time to discuss the question as to whether it be desirable or not. The committee believes it is not desirable, but it is also of the opinion that uniformity is possible, practicable, and desirable in certain features of secondary work, and that, therefore, the proper course to pursue is one that will leave sufficient scope for individuality, in the field where individuality rightly has most play. The committee aims to secure uniformity in that part of the field in which uniformity is most desirable. Using the terminology outlined in the above paragraph, there seems to be no need for uniformity in curriculums, and no possibility of it, but there does seem to be a great need for uniformity in courses of study, and no insurmountable obstacles to the securing of such uniformity are discoverable. The course of study is the unit out of which curriculums and programs are framed. It is with this unit that the work of the committee has been chiefly concerned.

Acting on these lines, the committee has devoted its chief energies, thru several years, to securing the formulation of satisfactory courses of study which should serve as units, or norms, worthy of national acceptance. The process of formulating these units has been outlined in the preceding sections of the report. The work, on the whole, represents the consensus of opinion of a very large body of the ablest experts in the country. The committee was obliged to rely upon the free co-operation of bodies of specialists for the work of laying out courses in the several subjects. Under such circumstances it was inevitable that there should be some differences in the thoroughness and enthusiasm with which the work was performed. Had the committee been able to call together special bodies of scholars and schoolmen to represent each subject taught in secondary schools, a more complete and symmetrical report might have been presented. On the other hand, it would have been impossible for the committee, with the amplest financial resources, to have secured such expert work as is represented in some of the special reports submitted, notably those on Greek and Latin, modern languages, and history. On the whole, therefore, it was, perhaps, fortunate that the method of work pursued by the committee was forced upon it by circumstances. Each body of specialists was invited to outline an ideal and also a practical course of study in the special study it represented. These courses are printed, each under its appropriate head, in the department of special reports.

These courses of study constitute so many national norms, or units, out of which any school may make up as rich a program of studies as its means and facilities permit; a program, moreover, which may be made to yield several curriculums, or, possibly, almost as many curriculums as there are students, each curriculum perhaps being better than the others, from an individual point of view.

In so far as the courses of study representing national units, or norms, may be adopted by the schools and colleges, great simplification will result in the subject of college-entrance requirements, the subject specifically referred to this committee. Hitherto there has existed the widest confusion in this matter, a confusion that has been more emphatic in some studies than in others, no doubt, and yet it has pertained to all of them. It has been owing largely to this confusion that the colleges have been unwilling to abandon entrance examinations. For instance, elementary German as prescribed for an entrance requirement meant nothing unless the ground covered were outlined with some minuteness in the college catalog, for what might constitute elementary German in one school might be a course of three periods a week for a year, in another five periods a week for a year, in another four periods a week for two years; in one school it might be pursued by the conversational or natural method, and in another by the grammatical method. The same, of

course, is true of French. In history there has existed a great amount of confusion. There has also been lacking a general consensus of opinion as to what constituted proper work in science for entrance requirements to college. In the older studies, mathematics and the ancient classics, there has been less confusion, as they have had a longer time to crystallize into definite form; but the report on classics by the American Philological Association represents a very distinct and important advance in the organization of classical education in this country.

The fundamental problem in this connection, in the minds of the committee at least, is to formulate courses of study in each of the several subjects of the curriculum which shall be substantially equal in value, the measure of value being both quantity and quality of work done. This idea has been kept firmly in mind by all the special committees, as is evinced by the fact that the courses of study outlined by these committees, make no great or unusual demands upon the schools, and are evidently, at a first glance, in a general way, substantially equivalent. If schools and colleges were able, generally, to accept these courses, the statement of entrance requirements would be extremely simple and perfectly intelligible. That such a general acceptance of these courses may not unreasonably be anticipated is shown from the experience with the English requirements for college entrance, which have within a few years, without any external pressure and authority, become practically uniform thruout the country, simply by reason of the formulation by a reputable body of experts of a definite course of work. It is not to be expected, nor is it desired, that all colleges should make the same entrance requirements, nor is it to be expected that all schools will have the same program of studies. What is to be desired, and what the committee hopes may become true, is that the colleges will state their entrance requirements in terms of national units, or norms, and that the schools will build up their program of studies out of the units furnished by these separate courses of study. A college may recognize more or fewer of these units, but where it recognizes a subject at all, it is to be hoped that it will recognize it in the shape of the national unit. So, probably, very few schools will be able or desire to offer all of the units, but out of the total number of units outlined any school should be able to build up a satisfactory program from which all necessary curriculums could be extracted.

Notwithstanding the care with which these courses of study representing different units, or norms, have been formulated, it cannot be expected that they will meet with universal acceptance. In many matters of detail they are bound to be criticised, but the committee earnestly expresses the hope that where individual preferences differ in minor details from the statements made in the special reports and the principles outlined in the report of the committee as a whole, these individual preferences will be subordinated for the sake of the general good. The reports of the

committees represent a large consensus of expert opinion, and as such should be entitled to weight and consideration. They are entitled also to the advantage of the doubt, where any individual questions as to whether the views expressed are sound on a given point. The opinion is held by good thinkers that we are living in an age of excessive individualism. It is certainly true that the educational system of the country has suffered, and still suffers, from the great opportunity afforded by our system for the play of individual idiosyncrasies. It is quite true, on the other hand, that education, as a whole, has gained vastly from the freedom offered to individual initiative; but on certain measures of national bearing the time has come to subordinate some personal preferences in order to reach an agreement which shall make for the public good. Such an agreement does not mean the abandonment or sacrifice of a principle, but it may involve the non-insistence on carrying the principle into immediate practice. In the curriculums large and, it would seem, ample scope is still left for the play of individuality. The committee distinctly refrains from entering upon the task of constructing curriculums to be imposed, for the sake of uniformity, upon the schools of the country. Such uniformity is not needed; but uniformity in courses of study which shall lead to the establishment of national units, or norms, does seem to be of so great importance that both colleges and secondary schools may fairly be expected to yield, to a large extent, individual opinions which interfere with its establishment. While the committee is unanimous in this opinion, it feels that the opinion would still be of little value but for the fact that in the course of four years' work upon this problem it has become convinced that there is a widespread sentiment among thoughtful educators of the country which demands such action. In formulating these courses of study, these units, or norms, and presenting them to the public, the committee does not, therefore, feel that it is leading the way into a new and untried field, making suggestions which may come to fruition in after-years, but that it is formulating, crystallizing, putting into definite shape beliefs and sentiments that have already taken hold upon the educational public. Legislation is largely the official recognition of existing facts or sentiments. The committee in this work feels that it is acting more in a legislative than in a pioneer capacity.

RESOLUTIONS OF THANKS

Resolved, That the conference desires to express its hearty thanks to all who have contributed to the success of the meeting; to President Harper for his cordial welcome and interest in the prosecution of its work; to the university for opening wide its doors and extending all its privileges; to Dr. William Gardner Hale for his special hospitality; to many other professors of the university for generous entertainment; and especially to the officers and members of the Quadrangle Club for the free use of their rooms and many other courtesies that have facilitated the work of the conference, and contributed greatly to the pleasure of its individual members; and to the Chicago press for the unusual pains taken to give full and impartial reports of its proceedings.

Resolved, That the hearty thanks of the committee are due, and are hereby extended, to the American Philological Association, the Modern Language Association of America, the American Historical Association, the western branch of the American Mathematical Association, and the Natural Science Department of the National Educational Association, for the great interest they have taken in our work, for the valuable services they have rendered in furnishing reports and other manuscript material for our use in preparing our report. Also to Professor Alexander Smith and Dr. John M. Coulter, of the University of Chicago, and Mr. Charles W. French, of the Hyde Park High School, of Chicago, for assistance similar in kind, and for the information and counsel they have so kindly furnished the committee since our session began.

Resolved, That the committee heartily appreciates the sustained interest of its chairman, and realizes that what measure of success it has attained is largely due to his indefatigable labors toward securing material from experts for the consideration of the committee.

RESOLUTIONS DEFINING DUTIES OF EDITORIAL COMMITTEE AND APPOINTING SAME

Resolved, That the chairman, Mr. Nightingale, together with Professors James and Thurber, be constituted a committee to prepare for publication the final report of the joint committee, and to carry it thru the press.

Resolved, That this committee of three has permission and authority to call upon the individual members of the joint committee for such facts and views as in their judgment may be necessary in preparing the report.

Resolved, That the report, when in type, be sent to all members of the general committee, in proof sheets, for their suggestions and criticisms, with the understanding that the committee of three shall be the final authority as to the admissibility of such suggestions and criticisms into the report as finally published.

Resolved, That when in the opinion of this committee of three such suggestions and criticisms cannot be properly admitted into the report, their authors shall have liberty to express them in dissenting special reports over their names.

Resolved, That it is not desirable that such dissenting reports shall be insisted upon except in the cases of serious divergency of views, of which the authors themselves shall be the sole judges.

It will be seen, by reference to the resolutions constituting and instructing the editorial committee of three, that the general committee thought it desirable to avoid, as far as possible, divergent views and dissenting opinions in the final report, and to secure the largest possible consensus of opinion consistent with the truth. This instruction has been carried out in its spirit. While the names of all the committee are signed to the report, and there are no dissenting reports, it is not to be supposed that the members of the committee all indorse every view and opinion that the report contains.

CONCLUSION

Upon several subjects of great importance this report is silent, much to the regret of the committee. These omissions and deficiencies must be regarded as due to the conditions under which the committee have worked, and not at all to any feeling on the part of the committee that these subjects are of relatively small importance. That courses of study have not been prepared in geology, astronomy, and physiology—subjects which play an important part in secondary courses, and which are, to

some extent at least, recognized for entrance to college—is perhaps the most important omission. The committee is bound to state, in justification of its own action, that, in accepting the proffered aid of the Department of Science of the National Educational Association, it depended upon the department for detailed reports upon courses of study in the several sciences taught in secondary schools, in the same way that it depended upon the Philological, the Historical, and the Modern Language Associations for detailed reports in their several branches of instruction. These reports were not forthcoming on the subjects of astronomy, geology, and physiology. In the three-days' session held by the committee it was quite impracticable to secure any reports that would have weight and value. The detailed consideration of these subjects is, therefore, reluctantly omitted from this report. But the committee would call attention to the fact that the general principles laid down in the report as a whole apply quite as thoroly to the branches just enumerated as to all the others for which detailed courses of study have been submitted. It might be helpful to the schools if carefully planned courses of study in astronomy, geology, and physiology could be presented in this document, but the general principles upon which such courses should be constructed and administered, in order that they may be received for college entrance, have been fully elucidated in connection with the other subjects of instruction and in the general resolutions adopted by the committee. So far, therefore, as the specific work of this committee is concerned in determining the principles to be followed in adjusting secondary courses to meet college-entrance requirements, and *vice versa*, it cannot be held that any subject has been slighted, for the fundamental work of the committee has been a formulation of principles that are equally applicable to all subjects of instruction.

Since the work of the committee is concerned in large part with the courses of study in secondary schools, it would, no doubt, have been desirable that the subject of commercial instruction should have been taken into consideration. What relation commercial studies shall have to other studies in the program, and whether any commercial studies, such as history of industries, history of commerce, and commercial geography, should be recognized for admission to college, are questions that will soon have immediate practical importance. The whole subject of commercial education in secondary schools seems to the committee one deserving of special study, one, indeed, for the consideration of which a special committee might well be appointed. Nor is the committee unmindful of the fact that it has not carried out that part of its self-adopted program of work which committed it to an investigation of the best methods of admission to college, whether by examination or by some form of certification. This question, however, seems not so fundamental as those to which the committee has advocated its labors. Still it would, no

doubt, be desirable to have an adequate study made of this matter in all of its phases and bearings. The time and resources at the disposal of the committee, however, were not adequate for accomplishing more than is herewith presented.

When it is remembered that the investigations carried on by the committee itself and those carried on at its suggestion, the results of which are herewith presented, have all been completed under a single appropriation, from the National Educational Association, of \$500 — an appropriation, moreover, which did not become available until the present year — it will be obvious at once that the committee has been favored by the generous and self-sacrificing assistance of many collaborators. A large number of educators, including those whose names are signed to the various special reports, and many others as well, have given generously of time, and also of money, to further the work of this committee. The cordial and enthusiastic support accorded to this investigation from the outset has been an unfailing source of inspiration to the members of the committee themselves, and a sure sign of the importance ascribed to the relations of high schools and colleges as a factor in the development of our higher education. The officers of the National Educational Association have given their cordial support to the work of the committee at every stage of its progress. The committee now submits its report, with the most cordial appreciation of the generous aid it has thus far received, with a conviction of the importance of the subject discussed that has grown more intense with every additional day of labor given to the report, and with no feeling that the work intrusted to the committee has been finally and forever accomplished, but in the hope that an important contribution has been made to the adjustment of the vexed relations between secondary and higher education, and with confident expectation that the report thus submitted will receive the careful study and, so far as may be justified, the approval and adoption of those who direct the higher education of this country.

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Superintendent of High Schools, Chicago, Ill.

W. H. SMILEY, *Secretary,*

Principal of High School, District No. 1, Denver, Colo.

GEORGE B. AITON,

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PART II

SPECIAL REPORTS *

REPORT OF THE COMMITTEE OF TWELVE OF THE AMERICAN PHILOLOGICAL ASSOCIATION ON COURSES IN LATIN AND GREEK IN SECONDARY SCHOOLS†

I. INTRODUCTION. THE WORK OF THE COMMITTEE OF TWELVE

The Committee of Twelve of the American Philological Association was appointed at a special session held in Philadelphia in December, 1894. It was instructed to bring to the attention of those who were interested in the subject a resolution, which the association had unanimously passed, that "in any program designed to prepare students for the classical course not less than three years of Greek should be required." The same committee was afterward requested to take into consideration also "the question of the amount of Latin needed for the various courses in secondary schools."¹ In accordance with these instructions, in the spring of 1895 the committee prepared an address on the study of Greek, which was approved at the next session of the association and was

* The special reports that follow were prepared by committees, appointed by the different associations which they represent, at the request of the Committee of the National Educational Association on College-Entrance Requirements. They call for careful study and the most earnest consideration, and can but be regarded as the most valuable contributions to secondary education which have ever been published.

The model courses of study presented are commended by the committee, altho it was not within the limits of its labor to verify all the statistics which will be found interesting, nor does it comment on the inferences drawn. These reports have been written after an amount of correspondence and investigation which can scarcely be estimated, and the large expense incurred has been borne by the associations calling them forth. We believe they will be of incalculable value to the better class of secondary schools throughout the country.

A. F. NIGHTINGALE, *Chairman.*

† The Committee of Twelve desires to express its sense of obligation to the twelve hundred teachers who have aided it by generously imparting information and counsel. The heaviest burdens of the committee have been borne by Professor Kelsey, of the University of Michigan; Professor West, of Princeton University; and the chairman, Professor Seymour, of Yale University.

¹ *Proceedings of the American Philological Association*, Special Session, 1894, p. xxviii.

extensively circulated.¹ At the meeting of the National Educational Association in July of the same year a copy of this address was laid before the Department of Secondary Education, which received it cordially and gave it a place in the minutes of the meeting.² In the spring of 1896 the committee prepared a report on the amount of time that should be allotted to Latin in school programs. This report was not only submitted to the American Philological Association, but was also, in accordance with a suggestion made by several members of the National Educational Association, presented at Buffalo in July to the joint session of the Departments of Higher and of Secondary Education, which expressed hearty approval of it by a unanimous vote, and ordered it printed in the minutes.³

At this time the National Educational Association was undertaking a comprehensive study of school programs in their relation to college-entrance requirements. At the Denver meeting a joint committee, composed of prominent members of the Departments of Higher and of Secondary Education, had been appointed, with instructions to report on the whole subject of entrance requirements the following year. This committee first made an extensive investigation of existing conditions,⁴ and then proceeded to formulate a plan of work. Having reached the conclusion that the problem of securing uniform entrance requirements can be solved only thru the attainment of greater uniformity in courses of study, the joint committee voted, as a part of its scheme, to invite certain scientific societies to render expert assistance in forming model programs which might be adopted by high schools, academies, and private schools in all parts of the country. The plan of work elaborated by this committee, including a proposition to invite the co-operation of the American Philological Association, was laid before the joint session of the Departments of Higher and of Secondary Education at Buffalo, and was adopted without modification.⁵ The secretary of the joint committee at once sent a telegram to the American Philological Association, which was then in session at Providence, inviting it "to prepare at its convenience a report on the proper course of secondary instruction in Latin and Greek." The American Philological Association accepted the invitation and instructed its Committee of Twelve to construct courses of study in the two languages as requested.⁶

¹ *Proceedings for July, 1895*, pp. xxxii-xxxviii.

² *Journal of Proceedings and Addresses of the National Educational Association*, 1895, pp. 581, 632-5; *School Review* for June, 1895, pp. 434-41.

³ *Proceedings and Addresses of the National Educational Association*, 1896, pp. 559-62; *Proceedings of the American Philological Association* for July, 1896, pp. li-lv. The report was published also in the *School Review* for June, 1896, pp. 472-4; the *New York Evening Post* for July 11, 1896; and *Book Reviews* for August, 1896, pp. 101-3.

⁴ See the *School Review* for June, 1896.

⁵ *Proceedings and Addresses of the National Educational Association*, 1896, pp. 558-9; *School Review* for June, 1896, p. 443.

⁶ *Proceedings of the American Philological Association* for July, 1896, p. lv.

The Committee of Twelve took up promptly the important work that had been assigned to it, and, after some preliminary correspondence, met in New York in December, 1896. It voted to send a circular of inquiry to teachers in all parts of the United States, requesting information regarding the present condition of the study of the classics, and suggestions in relation to classical programs. It decided also to invite representative men engaged in the work of secondary education, scholars of undoubted pedagogic ability and experience, to co-operate with it, as auxiliary committees for Latin and for Greek, and to have a meeting of the combined committees in the spring vacation of 1897.¹

More than six thousand copies of the circular of inquiry were sent out—to teachers of Latin and Greek, to superintendents, to principals of schools, and to others who are prominent in educational work. About one thousand replies were received, and thus there was placed in the hands of the committee a mass of material for consideration—exact information, and the opinions of specialists—such as had never before been gathered in relation to this subject. Great and general interest in the undertaking was evinced by the care with which most of the answers to the questions of the circular had been prepared. The replies were carefully tabulated by Dr. Arthur Fairbanks, of Yale University, and were brought before the committee at the meeting in New York, April 14.² The Committee of Twelve was in session with its auxiliary committees for two days, and worked diligently. After listening to a statement with regard to the answers to its inquiries, and to a discussion of certain fundamental questions connected with secondary instruction in the classics, the combined committees divided into two sections for the preparation of school programs for Greek and for Latin. In the time at their disposal the committees were able only to draft tentatively a four-year Latin course and a three-year Greek course; the whole matter of five-year and six-year Latin courses was referred to a special subcommittee, which met in Chicago in May. As a result of these labors, in the fall of 1897, the Committee of Twelve issued a preliminary report, which contained a brief statement in regard to the organization of the committee and the purpose of its work, and presented for criticism the tentative courses that had been drawn up—four-year, five-year, and six-year courses in Latin, and a three-year course in Greek.³ This preliminary report was submitted to the principal educational associations of the country, and copies were sent also to a number of educational experts; many kindly and helpful suggestions were received, and it became evident that the tentative programs, with slight modifications, would give as general satisfaction as any courses of study which the committee could devise.

¹ *Proceedings of the American Philological Association* for July, 1897, p. xxviii.

² See the *School Review* for June, 1897, pp. 350-59.

³ Published also (in essentially the same form) in the *School Review* for June, 1897, pp. 362-6; *Proceedings of the American Philological Association* for July, 1897, pp. xxxi-xxxiv.

Notwithstanding the favorable reception of the preliminary report, the Committee of Twelve resolved again to avail itself of the advice and criticism of those who are actually engaged in the work of classical instruction in secondary schools, before issuing its report in final form. A meeting of the combined committees was appointed to be held at Ann Arbor, Mich., in the spring vacation of 1898, and in order to attract a number of classical teachers, with whom the problems under consideration could be discussed face to face, a classical conference was arranged, with a two-days' program of scientific and pedagogical papers. The meetings opened with a session of the Latin section of the combined committees, on March 30; the conference was held on March 31 and April 1, and the Committee of Twelve met for its final session on April 2. The attendance at the classical conference was full and representative,* while at the various sessions of the committee officers and representative members were present, by invitation, from the more important educational associations of the East, the South, and the West, whose direct testimony gave a deeper insight into the conditions of classical study, in all parts of the country, than could have been gained from correspondence alone. Before adjourning, the Committee of Twelve voted that the publication of the courses of study, to the formulation of which so much time and effort had been given, should be accompanied by a statement of the reasons which had influenced its conclusions.

From what has been said it will be evident that this report was not prepared hastily by a committee anxious to avoid the consideration of burdensome details, and that it is not based primarily on theoretical considerations. It embodies conclusions reached after painstaking inquiry into actual conditions, as well as the results of mature and intelligent experience on the part of the advisers of the committee; and it has been drawn up after full consideration of the difficulties that lie along the path of educational advance in the secondary field. The committee is firmly of the opinion that the work outlined in the classical program here offered lies within the range of accomplishment of any school which has a competent classical teacher, and that there is no reason why at least the four-year Latin course and the three-year Greek course may not be generally adopted as a standard of classical work in the schools of the North, the South, the East, and the West.

PRELIMINARY OBSERVATIONS REGARDING THE REPORT

The investigations pursued by this committee show that there is a tendency in many places to increase the amount of time allowed to Latin in school programs, and that there is nowhere a movement in the other direction. The reports of the United States Commissioner of Education for the last nine years also reveal the highly encouraging fact that *the*

* See the *School Review* for June, 1898, pp. 425, 481.

*increase of enrollment of pupils in Latin in our secondary schools is very large, and is relatively greater than the increase in any other study.*¹ Nearly 175,000 more pupils were studying Latin in 1897-98 than in 1889-90. The increase of pupils in Greek, while not so marked, is likewise distinctly encouraging. Nearly 25,000 were reported as studying Greek in preparatory courses in 1897-98, against about 13,000 eight years earlier. Then, too, substantial progress has been made in the proper training of teachers. We are undoubtedly still far from having attained a proper professional standard; but, on the other hand, the facilities for training classical teachers are being constantly, even if somewhat irregularly, developed. It is now possible, as it was not twenty years ago, to find a fair number of well-equipped university courses devoted, at least in part, to the special training of capable instructors for our high schools and academies. There is also a distinct tendency to adapt text-books, in both Latin and Greek, to the pedagogical needs of pupils and teachers, and to emphasize the humanistic, as opposed to the pedantic, ideal of classical culture. The existence of all these favorable tendencies at the present time seems to indicate that we are entering upon a better age for the school study of the classics. A situation so hopeful as this naturally makes the necessity of giving organic unity to the increasing body of classical interests more pressing than ever before.

The committee is the more encouraged in proposing the courses of study submitted in this report, because it has made a careful investigation of the classical instruction in about a thousand high schools and academies, and has had associated with it, in all its conferences, representative schoolmen from the chief regions of our country where the classics are taught. On the basis of information thus obtained as to the actual condition of the teaching of Latin and Greek, and as to the resources and legitimate expectations of our secondary schools, we have been enabled to test in advance, so to speak, the practicability of the plans here presented; and we are gratified to be able to state that these plans are not based on a compromise of conflicting interests, but that, both in our judgment and in the judgment of the auxiliary committees, composed of representative teachers of Latin and Greek, they present a rational and practical standard, containing all the essentials in a sufficiently uniform relation, and yet affording a flexibility sufficient to allow for all reasonable diversity in different classes of schools in different parts of the land. The plans involve no radical reconstruction, but aim to bring the actually existing practices of our schools into organic unity, by gradual adaptation to a more consistent standard.

The problem encountered in dealing with the question of instruction in Latin in our American high schools, academies, and other secondary schools, while similar to the corresponding problem for Greek, is more

¹ See Appendix B at the end of this report.

complicated. It is similar because the principles which regulate the introduction of young students to both languages have long been recognized as practically identical. *Utrique eadem via est*, the maxim of Quintilian, might be taken without modification as summing up the settled belief of the best teachers of our own century with reference both to the unity of the classics as a field of study and to the unity of method to be pursued in teaching the two classical languages. The problem is more complicated, because more Latin than Greek is usually taught in any given school, because Latin is taught in a far larger number of schools, because many schools have more than one course in Latin instead of a single course as in Greek, and lastly because the length of time devoted to Latin varies more than the length of time devoted to Greek.

But another, and far more serious, cause of complication lies outside the relation of the two languages to each other, and is, in fact, a difficulty underlying our secondary education generally, so far as concerns the drawing up of programs of study, namely the lack of uniformity in courses of study in high schools and academies, and its cause or concomitant, the lack of uniformity in college standards of entrance. If, as we believe, the need of greater uniformity is urgent in order to enable our secondary education to accomplish its proper ends, then in no part of the field is it more conspicuously urgent than in the framing of programs of study. For unless school programs can in some rational way be so brought into harmony that classical courses, for example, so far as equal amounts of time are allotted to them, shall mean substantially the same thing in all parts of the country, we cannot expect to remedy either the existing inequalities and waste of time and energy in our school instruction, or the equally irrational inequalities of our college-entrance requirements in the same field. If, on the other hand, the school programs in Latin and Greek can be made substantially uniform, the schools themselves will be greatly helped, and a long step will have been taken toward the solution of a question which has deeply vexed the colleges.

In the case of the classics, as in the case of other studies, the desired remedy is not to be sought in any attempt to bring all the schools to the adoption of a single, inflexible program. Such uniformity would be both impracticable and in itself undesirable. Neither is it desirable that the various regions of the country should each make an independent program. There is already too much of such diversity, which tends to stereotype and perpetuate causes of division and hindrance — to provincialize rather than to nationalize our teaching. The committee recognizes, of course, that local differences in the programs of Latin and Greek will always exist, and that many of these differences are inevitable under any plan that may be proposed. Many of them are, indeed, made reasonable by local conditions. The committee was not directed to prepare a plan which could be carried out at once in every school, but the best program

which is practicable for the schools of the country under prevailing conditions—for public high schools, as well as for endowed academies and private “fitting schools.” The precise amount of time that a school can allow for Latin and Greek determines much, and this amount is sure to vary. Even more is determined by the strength and skill of the teaching force. Legitimate differences of opinion must also exist with reference to the order in which the different authors may best be taken up, and the precise amount of each that shall be read. Still other causes of variation will occur to those who are actually engaged in the work of teaching, and allowance must be made for such causes in any proposal designed to secure general assent. But after all concessions have been made to the inevitable diversity that arises from differences of locality and of methods, there still remain other differences which need elimination, or at least reduction to some common standard of variation, if any permanent success is to attend the present hopeful movement toward uniformity.

It is, indeed, fortunate for the cause of classical studies at the present time that the schools and colleges are already generally agreed as to the importance of greater organic unity in the courses of our preparatory schools. The present decade has witnessed far more extensive and intelligent discussion and conference looking toward the accomplishment of this result than has ever before been known in our country.

In offering the fruits of its labors to the two educational bodies under which it has been working, the Committee of Twelve desires to make grateful acknowledgment of the invaluable assistance which it has received from the members of its auxiliary committees and from other educational workers, who have freely responded to every request for information and counsel; and it wishes further to express the hope that this report may contribute in some measure to the unification and advancement of our secondary instruction in Greek and Latin.

CONSTITUTION OF THE COMMITTEE OF TWELVE AND ITS AUXILIARY COMMITTEES

THE COMMITTEE OF TWELVE

THOMAS DAY SEYMOUR, professor of Greek, Yale University, *chairman*

CECIL F. P. BANCROFT, principal of Phillips Andover Academy.

FRANKLIN CARTER, president of Williams College.

WILLIAM GARDNER HALE, professor of Latin, University of Chicago.

WILLIAM R. HARPER, president of the University of Chicago.

FRANCIS W. KELSEY, professor of Latin, University of Michigan.

ABBY LEACH, professor of Greek, Vassar College.

CHARLES FORSTER SMITH, professor of Greek, University of Wisconsin.

CLEMENT L. SMITH, professor of Latin, Harvard University.

HERBERT WEIR SMYTH, professor of Greek, Bryn Mawr College.
 MINTON WARREN, professor of Latin, Johns Hopkins University.
 ANDREW F. WEST, professor of Latin, Princeton University.

THE AUXILIARY COMMITTEES

The Latin Auxiliary Committee was constituted as follows :

GEORGE B. AITON, inspector of state high schools, Minneapolis, Minn.
 J. REMSEN BISHOP, Walnut Hill High School, Cincinnati, O.
 DAVID Y. COMSTOCK, principal of St. Johnsbury Academy, St. Johnsbury, Vt.
 E. W. COY, principal of the Hughes High School, Cincinnati, O.
 LAWRENCE C. HULL, Lawrenceville School, Lawrenceville, N. J.
 RICHARD A. MINCKWITZ, Kansas City High School, Kansas City, Mo.
 OSCAR D. ROBINSON, principal of the Albany High School, Albany, N. Y.
 CHARLES H. THURBER, dean of Morgan Park Academy, Morgan Park, Ill.
 A. W. TRESSLER, superintendent of schools, Monroe, Mich.
 W. R. WEBB, principal of Webb School, Bell Buckle, Tenn.

The Greek Auxiliary Committee was constituted as follows :

EDWARD B. CLAPP, professor of Greek, University of California, Berkeley, Cal.
 E. G. COY, principal of the Hotchkiss School, Lakeville, Conn.
 J. G. CROSSWELL, principal of the Brearley School, New York city.
 WILLIAM GALLAGHER, principal of the Thayer Academy, South Braintree, Mass.
 ROBERT P. KEEP, principal of the Free Academy, Norwich, Conn.
 C. A. MITCHELL, classical master of the University School, Cleveland, O.
 W. D. MOONEY, principal of the Mooney School, Franklin, Tenn.
 J. H. PRATT, principal of the Milwaukee Academy, Milwaukee, Wis.
 JULIUS SACHS, principal of the Collegiate School, W. Fifty-ninth street, New York city.
 H. G. SHERRARD, classical master of the High School, Detroit, Mich.

II. GREEK COURSES IN SECONDARY SCHOOLS

The preparation of the Greek programs presented to the committee a simple problem, in view of the limited time which can be given in the schools to the reading of Greek literature, and of the small amount of Greek literature which is suitable for classes of beginners. The problem had been still further simplified by the discussions and actions of recent conferences, particularly the Greek conference of the Committee of Ten, the Commission of New England Colleges, and the Greek conference held at Columbia University in the spring of 1896 — all of these being in substantial agreement, and already approved by many of the most able teachers of the country. The replies to the committee's circular of inquiry gave abundant information, both as to what is actually done in our schools, and as to what is desired. From California, Wisconsin, and Tennessee, in particular, had come letters which presented a most hopeful view of the position of the classics in the schools, and urged that the committee should yield to no suggestion of a weaker, less exacting course of preparation for college. The committee was unanimous in reaffirming the position taken by the Greek conference of the Committee of Ten,

and proposed a program which is in essential agreement with those of the Commission of New England Colleges and the Columbia conference of 1896.

The committee recommends that three years be devoted to the study of Greek in secondary schools, with the understanding that the year consists of not less than thirty-eight weeks of school work, and that five periods of recitation a week, of not less than forty-five minutes each, be given to this study. In some parts of the United States work is crowded into two years, to which, in other parts, three years are devoted. Under exceptional circumstances, with earnest scholars and skillful teachers and long school years, the work of preparation for college in Greek may be done well in two years; but in general, with less earnestness and skill, this work is likely to be superficial if it is so hurried, and the Committee of Twelve still (and more earnestly than ever) urges the maintenance of a three-year preparatory course in Greek.

The committee further recommends heartily a thoro and methodical study of Greek grammar as the necessary basis of accurate reading. No one proposes to return to the former practice of committing to memory all of the rules of Greek grammar before applying them in reading; but pupils cannot be expected to prove fair scholars unless they know Greek forms and the elements of Greek syntax well before they are sent to college. Moreover, a vigorous and continued effort should be made to correlate and arrange the isolated grammatical facts in the pupil's mind. Our Greek grammars aim to be scientific, and their arrangement should be well understood by the pupil, in order that he may know where to look for the information which he needs. The teacher is in danger of forgetting that the pupil does not easily obtain the general view of the field of grammatical study with which he is himself familiar, and that it is this knowledge alone which enables the beginner to put into their right relations the grammatical facts which he learns. For instance, the pupil should know the most important syntactical uses of each case—understanding that the genitive has accepted the work of the ablative in addition to its own, and the dative that of the instrumental and the locative. The correspondence between the constructions of conditional and relative sentences should be clearly apprehended. Altho the "analysis" of the verbal forms is no longer required so strictly as it was a quarter of a century ago, the pupil may well be taught the elements of word-formation and inflection.

The committee further recommends that, from the beginning, systematic instruction be given in Greek composition, and that exercises in writing Greek, based upon connected reading in Greek prose, be continued thru the third year. Elementary Greek composition, which alone is attempted in the schools of America, is an indispensable auxiliary to, and we may almost say a part of, grammatical study. The teacher

does not expect to train his pupil to vie with Xenophon as a Greek writer ; he is entirely satisfied if his pupil can read Greek. Composition should not, therefore, be considered as taking time from reading, but as preparing the pupil to read more readily and accurately. It fixes the pupil's vocabulary more firmly in his mind, serves as a constant review of Greek forms, quickens his sensitiveness to the peculiar significance of the order of words in the Greek prose sentence, and to the difference of meaning between similar words and constructions. It is useful also as a check to the carelessness into which many pupils are in danger of falling, if (as is well) they read large quantities of Greek cursorily "at sight." For accurate scholarship in Greek we know no better training than many and carefully corrected exercises in Greek composition. These exercises should not be postponed to a late part of the course, but should be begun at the outset, when they will materially assist the pupil in mastering the forms, make his knowledge of constructions exact, cause him to observe Greek usage, and help him to feel the accuracy and force with which the Greek language can express thought. If they are neglected during any part of the reading course, to be resumed only a short time before the pupil leaves the secondary school, the subject is likely to become distasteful, because unwonted and difficult to the pupil, who will have been deprived of the aid which he should have received from the exercise during his entire course.

The continuance of exercises in Greek composition during the third year, while most of the time of instruction is given to Homer, is particularly important. This has been proved to be the best means of preserving the familiarity with Attic forms and constructions which is essential for satisfactory work in the college course, in the reading of Plato, Demosthenes, Sophocles, Euripides, etc.

In the hands of a skillful teacher, the most efficient exercises in Greek composition are in retroversion, that is, the re-turning into Greek of the English of some Attic prose which has been read by the student. If the teacher has not the time to prepare such exercises for his class, several text-books are ready to render this service. Certain advantages, however, are possessed by the systematic presentation of Greek constructions, in books which are prepared with no reference to a special text. A combination of the two methods is desirable wherever practicable.

In this country, teachers are in little danger of going to excess in attending to the niceties of Greek composition. The making of Greek iambic and lyric verse, which has been practiced in England, quickens the æsthetic and literary sensibilities, but is useful chiefly for those who have time for advanced scholarship. The criticisms which have been uttered against such composition of verses do not hold against the composition of simple Attic prose which is here recommended.

The committee further recommends that exercises in the reading of unprepared passages (commonly known as sight reading) be begun at the outset of the Greek course and be continued thru it. Exercises in the reading of unprepared passages of Greek enable the teacher to discern, and so to meet, the pupil's difficulties in the interpretation of a new sentence. Very many freshmen seem to have pursued a wrong method of seeking to gain the understanding of a Greek sentence which a little reading of unprepared passages in the class-room would enable the teacher to detect, and perhaps to remedy. If the pupil comes to the teacher only with work carefully prepared with the aid of lexicon and commentary, the teacher may not discover some of the pupil's weaknesses, and may not understand his difficulties. These exercises also give the pupil readiness in translation and a feeling of mastery over the newly acquired language. Rapid reading, as well as exact interpretation, is necessary to true scholarship.

The practice of reading Greek aloud with intelligent expression is warmly recommended by the committee. This aids materially in the treatment of Greek as a living language, and, so far as the acquisition of forms and vocabulary is concerned, the voice is as important for the teachers of Greek and Latin as for those of German and French. Careful attention should be paid to the quantity of the syllables, since the rhythm, not only of the poets, but also of the great orators, was based upon this quantity.

In the Greek preparatory course small opportunity can arise for question as to what shall be read, and in what order. Altho Xenophon's style is now known to be not absolutely pure Attic, yet no Greek reading better than the *Anabasis* has been found for the second year of the Greek course. Some teachers, however, may prefer to read only two books of the *Anabasis*, and make up from other works of Xenophon, or from other authors, the equivalent of the third and fourth books of the *Anabasis*.

In order to secure a much-desired uniformity, colleges have been requested by several commissions and associations to base their examinations in Greek grammar and composition (in distinction from the ability to read Greek and translate it) on the first two books of the *Anabasis*.

The committee, finally, recommends that Homer be read in the last year of the preparatory course. From one point of view the pupil ought to continue the study of Attic prose without interruption during the third year of his Greek course, without being introduced to another Greek dialect. But for the sake of those students who take Greek in the secondary school, but do not go to college, and as an inspiration to the scholars who are at an age to be thoroly interested in the Homeric poems, the teachers of secondary schools are almost unanimous in their desire that the third year of the three-year Greek course should be given mainly to Homer. The best pupils feel Homer to be *literature*, and so get an

enticing foretaste of what awaits them in the reading of the college course. Some teachers prefer to begin Homer with the reading of the early books of the *Iliad*; others prefer the *Odyssey*; others would read the *Iliad* one year and the *Odyssey* another. Most colleges allow an option between equivalents, in order to give the fullest freedom to the secondary schools.

COURSE OF STUDY RECOMMENDED IN GREEK

(Five periods weekly thruout the three years)

FIRST YEAR

First and second terms : Introductory lessons.

Third term : Xenophon's *Anabasis* (20 to 30 pages).

Practice in reading at sight and in writing Greek.

Systematic study of grammar begun.

SECOND YEAR

Xenophon's *Anabasis* (continued), either alone or with other Attic prose (75 to 120 pages).

Practice in reading at sight, systematic study of grammar, thoro grammatical review, and practice in writing Greek, both based on study of Books I and II of the *Anabasis*.

THIRD YEAR

Homer (2,500 to 4,000 lines); e. g., *Iliad*, I-III (omitting II, 494-end), and VI-VIII.

Attic prose (33 to 40 pages), with practice in writing Greek; grammar; practice in reading at sight.

NOTE.—If preparation for an advanced examination in Greek composition is not desired, the course may be reduced by one lesson a week for the first year.

III. LATIN COURSES IN SECONDARY SCHOOLS

The determining factor in constructing a course in Latin in any of our high schools, academies, or private schools is practically the amount of time which can be allowed to that study, in view of the claims of other studies and the length of the school course. The ordinary arrangement is that of the four-year course of five exercises weekly. The average age of pupils at the beginning of the course is between fourteen and fifteen years. This four-year course is commonly the standard in our high schools and academies. There are schools, however, which are unable to allow four years to Latin, and these, as a rule, provide a three-year course. In a considerable number of schools, on the other hand, a five-year or a six-year course is to be found. The tendency to lengthen the Latin course beyond four years is clearly becoming stronger. This tendency did not receive its initial impulse from the colleges and universities, but manifests rather the characteristics of a spontaneous movement on the part of principals and teachers in secondary schools. It had its origin in a growing conviction that the ends of education, at least in the earlier stages, are best subserved by the concentration of effort upon a limited number of leading studies, properly correlated,

rather than by the scattering of energies over an indefinite range of loosely related subjects. The lengthening of the Latin course is accomplished, however, not by keeping the pupil at school longer, but by having him begin Latin earlier. The old four-year course in many places has been extended downward one or two years; and it is, in fact, in this way that most of the five-year and six-year courses have been established. Such is clearly the rational procedure, both because of the better results obtained with pupils who begin Latin early, and because of the undesirability, if not the impossibility, of securing the additional Latin by keeping pupils at school beyond the age at which they now usually complete the course.

The problem, therefore, which is likely to be encountered by every school that has to face the question of the extension of its Latin course is the problem of having Latin begun one or more years earlier than at present, and of using the additional time upon a rationally coherent plan. As a four-year or five-year course is extended, here and there in different parts of the country, into a six-year course, and even as a three-year course is extended into a four-year course, it is desirable that the extension be accomplished according to some common understanding. In the case of schools which do not purpose to extend the course in length, but desire to use the present available time to better advantage, it is perhaps even more important that the inner modifications which may be introduced without additional expenditure of time should likewise be made in accordance with a common plan.

In taking up the first problem—the problem presented by the variation in length of Latin courses—the committee was forced to regard the four-year course of five exercises a week as the only available general standard, for the reason that, as has been said, it corresponds, more nearly than any other, to the actual practice of the majority of American schools. The three-year course was considered as an incomplete four-year course, and was not treated as a separately existing type. Consequently no attempt was made to present a model three-year course, for it was assumed that three-year courses, if constructed, would be formed out of elements of the four-year course. Then a six-year course was framed, containing everything in the four-year course, together with such amplifications and additions as would render the six-year course a rationally connected whole. The five-year course, being intermediate between the four-year and the six-year courses, appeared in one aspect as an extension of the four-year course, and in another as an uncompleted six-year course. Inasmuch as, in many instances, the conversion of a four-year into a six-year course might be made, not by establishing a six-year course immediately, but by passing thru a transitional five-year course, it seemed best to draw up a five-year course in such a manner that it would serve as a transition from the four-year to the six-year course, and would at

the same time preserve its own rational unity, so that schools which might never attain to a six-year course should nevertheless find all the parts of a five-year course thoroly co-ordinated with one another.

Moreover, since schools with younger pupils naturally find it better to spend more time on the elements, while schools with older and presumably maturer pupils may prefer to do a larger amount of reading, the five-year course has been drawn up in a double form, with this alternative in view; but in either form it will serve as a logical transition from the four-year to the six-year course, and likewise as a course complete in itself. The proposed arrangement, whereby it was made possible for schools to devote either four, five, or six years to Latin in accordance with a common plan, traveling the same road together, and parting company only where one stops and another goes on, will greatly reduce the practical difficulties arising from the present lack of uniformity in the length of Latin courses.

In dealing with the second problem, that of using to better advantage the time now allowed to Latin, thru inner modification of the existing course of study without increase of length, the committee found it necessary to construct, piece by piece, a standard course. Again the four-year course of five exercises a week had to be assumed as a standard. This number of exercises forms a fourth of the usual school week of about twenty periods. The proportion of time thus assumed for Latin corresponds closely, as has already been intimated, with the present practice of most of the schools possessing a four-year course. For some of them such a standard would represent an increase, tho a very slight one, beyond the amount of time now given. A standard of five exercises weekly for four years is, therefore, a practicable one for most of the schools that now give four years to Latin.

This amount of time being assumed as available, or obtainable without great effort, the next question which confronted the committee was to determine what subjects should be included in the four-year Latin course, how far each should be carried, and in what order they should be taken up. It would have been an easy task to draw up an inflexible program based solely on theoretical considerations; but such a program would show little wisdom. The only course left open to the committee was to endeavor to find a feasible way of improving upon our present practice, keeping constantly in mind the limitations prescribed by existing conditions. The stock and staple of our Latin instruction in the existing four-year courses consists of Latin grammar—usually taught in the form of Latin lessons—Latin prose composition, four or five books of Cæsar's *Gallie War* or some equivalent, six orations of Cicero, and six books of Virgil's *Æneid*. These may be taken as constituting a substantially irreducible minimum. Most schools having a four-year course do as much as this; some do a good deal more, many a little more. The contents of

this minimum enter solidly into college-entrance requirements thruout the country, and the propriety of regarding them as essential elements in any Latin program will not be questioned. At times, indeed, some opposition has been made to the study of Cæsar, as too difficult for students in the second year of the course. But this objection loses its validity when the study of Cæsar is preceded by the reading of an adequate amount of simple Latin, as recommended in the program below. At all events, the objection suggested may be met by allowing an equivalent from some easier author to be offered for a *part* of the *Commentaries*; to omit Cæsar entirely would be a retrograde step in the framing of Latin programs. Apart from this question with regard to the availability of Cæsar, no serious difference of opinion exists. If, then, we assume that Latin grammar, Latin composition, some easy reading, four or five books of Cæsar (with a partial equivalent allowed), six orations of Cicero, and six books of Virgil may be considered as forming the assured basis of a standard four-year course, the question at once arises whether this is all that should enter into such a course. It has already been said that these subjects represent nothing more than the average practice of the majority of schools with four-year courses, and something less than many such schools are actually giving — and that, too, without being able to allow quite as much time as five exercises weekly thruout the four years. To accept this substantially irreducible *minimum* found in the great majority of four-year courses, without adding anything to allow for the extra work now actually done in many places, and without taking account of the present marked tendency to increase the amount of Latin taught, would be equivalent to the proposing of a standard actually lower than our present practice. Accordingly it is necessary to strengthen the proposed standard four-year course to an extent which will make it somewhat better than some of the existing four-year courses; otherwise no proper model will be presented, in conformity with which our present four-year courses may be made not only more nearly uniform, but also a little better intrinsically. The small increment thus desired may be added in either of two ways. One is by an increase of the amount of work in the present subjects — a little more grammar, or easy reading, or prose composition, or Cæsar, or Cicero, or Virgil. The other is by increasing the variety and interest of the course by adding other subjects. There is merit in both methods, and neither is to be generally recommended to the entire exclusion of the other. In laying out a four-year course with five exercises weekly, it will be found practicable to take advantage of both methods. The desired increment, if it is to be obtained without adding to the list of existing subjects, may be secured by devoting more time to the grammar lessons, the written prose exercises, and the easy reading which precedes and prepares for the reading of Cæsar, Cicero, and Virgil; or it may be secured by an increase in the amount of reading

in the works of one or more of these authors, provided it always is understood that, in case a school cannot both improve the quality of the more elementary work and at the same time read the maximum quantity suggested in any or all of the authors, it is better to do with thoroughness the elementary grammar, written prose exercises, and easy reading, and to read the minimum amounts of the authors, than to sacrifice in any degree the earlier and fundamental work.

But in many schools, for various reasons — principally the desire for greater variety to enliven the interest of pupils — other authors are introduced in addition to Cæsar, Cicero, and Virgil. Many teachers favor Cornelius Nepos for easy reading just before Cæsar, or in place of a part of the *Commentaries*. The plan proposed by the committee, while not giving Nepos a fixed place, leaves ample room for such use as has been indicated. Selections from Eutropius, Florus, and the *Fables* may, of course, be employed, or the useful “made-Latin” of Lhomond’s *Viri Romæ*. The committee, however, does not find it expedient to recommend any one of these classes of material, or any special combination of them, as a fixed part of a course. They may all be made to serve one purpose, and, while uniformity may appear desirable at this point, it is by no means essential.

In the list of authors two additions are proposed — the *Catiline* of Sallust and a small amount of Ovid. Sallust, indeed, has of late years been less read in schools than formerly, but there are excellent reasons in favor of this author. His *Catiline* forms the best bridge over the gap between Cæsar and Cicero. Even young pupils find it attractive. It is not too hard. It helps to illustrate from a different angle of vision the intensely interesting age to which Cæsar and Cicero also belong. Its fine portraiture and graphic style give it merited rank as a classical masterpiece. And, finally, it is so brief that, while adding little to the amount read, it affords a special satisfaction in that it enables the young student to complete an entire work, instead of constantly occupying himself with selections; while at the same time it introduces variety into his reading. Having made the acquaintance of Cæsar, Sallust, and Cicero, the pupil has gained a considerable knowledge of the golden age of Latin prose — the foundation of all his subsequent study of the literature — as well as of the most important period of Roman history, that immediately preceding the downfall of the republic. In like manner the study of Ovid forms a useful preparation for the reading of Virgil. Even a few hundred lines will serve to give variety to the poetical reading of the student, and enhance his appreciation of the golden age of Roman poetry, the period of Augustus, which forms the literary as well as the historical sequel to the great republican period.

It will be seen that a preference is here indicated for a particular order of authors: first, the prose writers of the republic, represented by Cæsar,

Sallust, and Cicero; and then the poets of the Augustan age, represented by Ovid and Virgil. The prose writers give the normal syntax and the general standards of literary expression, thus providing the young student with the proper foundation for all subsequent study of the language. The poets selected not only belong to a later age than the prose writers named, but are read with greater ease and profit after the student's knowledge of prose usages is established. A further consideration in favor of the order recommended may be found in the relation of the authors read to the exercises in prose composition. Prose composition should be taught thru the whole four years of the course, and the exercises should be formed upon the best prose models. In the program of the first year provision is made for easy written exercises in connection with lessons in grammar. In that of the second year the Latin writing will naturally be based on Cæsar. If Cicero is read in the third year, the Latin writing will, of course, be based on Cicero, and may continue to be based upon this author in the fourth year, even if poetry be read exclusively. If, on the other hand, Virgil is read in the third year, it will be difficult to maintain the course in Latin writing, in either that or the following year, on as high a level as is possible under the other arrangement. Still, the fact remains that there is a division of opinion upon this one phase of the subject. In many schools Virgil is read before Cicero. If the adoption of a model four-year Latin course were to turn upon this one point of the order in which the two authors should be read, probably no agreement would be reached. It is, of course, more important that the two authors be *read*, in whatever order, than that the order of the reading should be uniform. It is also important that the reading of additional writers, such as Sallust and Ovid, shall not be made to depend upon any considerations of order. In the four-year course outlined below, the last two years are mainly occupied with Sallust, Cicero, Ovid, and Virgil. The order in which these four authors are placed in the program indicates the clear preference of the committee, reached after extended conference with representative schoolmen in the auxiliary committees; while, on the other hand, the omission of any line of separation between the third and fourth years is intended to express the recognition, on the part of the committee, of the existence of differing opinions on the subject.

The arrangement of the earlier part of the four-year course naturally involves several questions connected with the methods to be pursued in the elementary study of the subject. The work of the earliest stage must, of course, be mainly disciplinary. The study of grammar gives acquaintance with the forms and laws of the language, and the progressive acquisition of vocabulary gives the material for reading, while easy exercises in the writing of Latin prose and training in simple reading organize this material again under the forms and laws of grammar. It is assumed that these principles govern all sound elementary teaching in the

subject. At the same time emphasis needs to be laid on the spirit and perspective characterizing this earlier work. Easy reading should be begun at the earliest possible moment. The writing of easy sentences, even if consisting of only three or four words, should be commenced at the very outset, and out of this writing should be developed gradually the fuller practice in connected expression which ought to be continued thru the entire course. In all written exercises, of whatever kind, the long vowels should be marked. There should be abundant practice in reading Latin aloud, pains being taken to make the pronunciation conform to the quantities; while, at the same time, great emphasis should be laid upon intelligent expression. The student should be carefully trained to take in the meaning of the sentence *in the order in which it stands, and before translating*. The English of the translation, too, should be *genuine* English, not *Latin-English*. As a help to the pupil's understanding, he should memorize short prose passages, maxims, and bits of poetry. These will remain with him, and will ever afterward contribute to his enjoyment of the classics.

The proposed standard four-year course has been drawn upon the basis of these convictions. It has not, to be sure, been the intention to represent our present practice without change; and we accordingly can hardly expect that all of the schools which give four years to Latin will immediately adopt the course as it stands. In the case of most schools, however, it seems reasonable to look forward to the acceptance of as strong a program as is here given, even if only the minimum amounts of the authors recommended shall be read. The plan is proposed as a model toward which all our present four-year courses can be made to approach closely, and thus to conform to one another in a degree which in no other way seems possible of attainment. Tho uniformity in the particular parts of the authors read may be desirable, no recommendation is made in this respect, except in the case of Sallust's *Catiline*. Teachers naturally will not be in perfect agreement in regard to the particular books of Cæsar and orations of Cicero which they would prefer to have their classes read. In most cases the selection is influenced by tradition, and, in any event, it is impossible to arrive at uniformity, for the reason that many teachers prefer to make changes from year to year. In relation to college-entrance requirements, however, this diversity occasions no especial difficulty, because the colleges are inclined more and more to be liberal in accepting equivalents.

Embodying in a program the suggestions which have been offered, we obtain the following standard four-year Latin course:

PROPOSED FOUR-YEAR LATIN COURSE

(Five periods weekly thruout the four years)

FIRST YEAR

Latin lessons, accompanied from an early stage by the reading of simple selections. Easy reading: twenty to thirty pages of a consecutive text.

In all written exercises the long vowels should be marked, and in all oral exercises pains should be taken to make the pronunciation conform to the quantities.

The student should be trained from the beginning to grasp the meaning of the Latin before translating, and then to render into idiomatic English; and should be taught to read the Latin aloud with intelligent expression.

SECOND YEAR

Selections from Cæsar's *Gallic War* equivalent in amount to four or five books; selections from other prose writers, such as Nepos, may be taken as a substitute for one, or at most two, books.

The equivalent of at least one period a week in prose composition based on Cæsar.

Reading aloud and translating, together with training in correct methods of apprehending the author's meaning, both prepared and unprepared passages being used as material. The memorizing of selected passages.

THIRD AND FOURTH YEARS

Sallust's *Catiline*.¹

Cicero: six to nine orations (including the *De Imperio Cn. Pompeii*).

Ovid: 500 to 1,500 verses.

Virgil's *Æneid*: six to nine books.

The equivalent of at least one period a week in prose composition based on Cicero.

The reading of Latin aloud. The memorizing of selected passages.

The bearing which the adoption of a standard four-year course would have on college-entrance requirements is obvious. The minimum amounts proposed—consisting of Latin grammar, prose composition, four books of Cæsar, Sallust's *Catiline*, six orations of Cicero, a little Ovid, and six books of Virgil—may easily be accepted as a fixed minimum entrance requirement.

The question may be raised whether the proposed standard four-year course is sufficiently elastic in the choice of subjects. If it is not, it is in so far impracticable. Nevertheless, if a standard is made too elastic, its value as a standard is destroyed. American schools exhibit a marked diversity, such as, perhaps, will not be found in the schools of all Europe. This striking individuality is not a thing to be rashly denounced or unduly discouraged. It is in accord with our diversified and free American life. But in the case of our schools, and of our colleges too, the individuality is certainly excessive, and detrimental to the interests of scholar and teacher alike. The effect upon the colleges produced by this individuality on the part of the schools may be imagined when it is remembered that a single class in one of the former is sure to contain students from a large number of the latter. The differences in our Latin programs ought not to be so great as to preclude agreement upon a list of fundamental subjects, their general order of presentation, and their mode of treatment. The line between tolerable and intolerable differences may, like some other boundary lines, be impossible to draw with

¹The Committee on College-Entrance Requirements adds the word "selections" after Sallust's *Catiline*.

precision ; yet, even when we cannot draw exact boundaries, it is usually possible to distinguish regions, and to define, and even reduce, the area under dispute. Such disagreement as actually exists in the present instance is mainly the result merely of particular preferences in matters of detail. The principal difference, as already mentioned, concerns the reading of Cæsar ; but the difficulty occasioned by the difference is met, in the proposals of the committee, partly by the suggestion of an equivalent for a part of Cæsar in the program of the school, and partly by the willingness of colleges to accept still other equivalents at the entrance examinations. There is also a minor difference of opinion in relation to the use of Sallust and Ovid ; but, with these exceptions, there is no important disagreement regarding the minimum amounts. Where so much is unanimously approved, and where the preponderating weight of opinion is strongly fixed in regard to even the mildly disputed points, it is certainly time to agree upon a minimum standard for gradual imitation, especially when the proposed standard is homogeneously consistent, and embodies a fundamental principle.

Up to this point the question of flexibility has remained untouched, but agreement as to the mode of attaining flexibility has been made possible. In the framing of a standard course, the committee found itself concerned, not so much with the question whether it should recommend more or fewer subjects, but whether it should recommend a greater or less amount of each subject. In the case of grammar and prose composition, it was recognized that the determination of the amount of ground to be covered must be left to the individual teacher ; tho the committee is clearly of the opinion that the systematic study of both of these subjects should be carried thru the entire course. As regards the ground to be covered in the authors, while it is desirable that as much reading as possible should be done, nevertheless thoroness should never be sacrificed to quantity. Only a moderate range of variation is, therefore, suggested—which amounts, for example, to a single book in the case of Cæsar, three orations in the case of Cicero, a thousand lines in the case of Ovid, and three books in the case of Virgil. This additional reading can be done rapidly, if the earlier work in the authors has been sufficiently accurate and painstaking. It may not be expedient for all schools at once to read the maximum amounts suggested. But the program presented possesses the advantage of conforming closely, in the statement of maximums, to the actual practice of many schools—a practice which is not beyond the attainment of any school that is able to devote five exercises weekly to Latin for four years—while in the statement of minimums it presents a standard easily reached under almost any conditions.

The committee, however, would not have been justified in limiting its attention to the problems presented by the four-year course. It was surprised to find in how many schools five-year and six-year courses are in

actual operation today. The demand seemed imperative that it should undertake to formulate courses extending beyond the four-year limit. It has accordingly presented a five-year course, drawn in double form. The first form is the standard four-year course, with the work of the first year extended over two years in order to give twice the amount of time for grammar lessons, the writing of simple exercises, and easy reading. This form is intended to meet the needs of students who commence Latin a year earlier than in the ordinary four-year course. All educational experience shows that the best results may be secured from the study of Latin when the subject is commenced somewhat earlier than is usual in this country, and at least two years are given to the elementary work before the pupil begins the reading of *Nepos* or *Cæsar*. The second form is designed for schools which have more mature and stronger pupils. The work of the first four years of this course coincides with that of the four-year standard course; the additional year is devoted mainly to reading. The recommendation is made that Virgil's *Æneid* be completed, in order that pupils who have the time for a five-year course may enjoy the satisfaction of reading the greatest Latin epic to the end, and viewing it as an artistic whole. An additional amount of Cicero is also recommended: the two essays *On Old Age* and *On Friendship*, which are short and complete in themselves, together with some of the briefer and more interesting *Letters*. Thus the pupil's acquaintance with Cicero's many-sided literary and intellectual accomplishments will be extended, while the selections suggested will furnish the best possible model of style for the writing of Latin in the latter part of the course.

A six-year course may be established at once by introducing Latin into the last two years of the grammar schools; such was the method adopted in the city of Chicago. Or a six-year course may be developed out of the five-year course, thru the use of either of the forms which have been suggested. In either case it is obviously desirable to aim at a fair degree of uniformity in such courses, and thus avoid for them the inconveniences from which our present four-year courses suffer. In the six-year course, at any rate, two years can be given to that careful and thoro preparation for reading which not only forms the best foundation for all later work in Latin, but also constitutes, for this period of the student's education, the most effective instrument of training in exact habits of thought and of expression. If two years are given to this sort of work, most of the difficulties felt by the young pupil in entering upon the study of *Cæsar* will have been anticipated and overcome. Thus arranged, the first five years of the six-year course and the five-year course in the first form presented will be identical in respect of the subjects taken up and the order of arrangement. The work of the sixth year will then correspond closely with that of the last year of the five-year course as given in the second form; that is, it will be devoted to the finishing of

the *Æneid*, to the reading of Cicero's essays *On Old Age* and *On Friendship*, and of selected *Letters*, and two weekly exercises in prose composition based on Cicero. As in the case of the five-year course, the principal object should be, not to extend widely the range of authors taken up, but so to adjust the work of the course to the needs of the pupil's intellectual life as most effectively to promote his development at this period. In a number of cities it has been thought advantageous to give two years of Latin in the grammar school rather than one. The reason is that, since the length of the high-school course, by common consent, remains fixed at four years, the study of Latin for only a single year before entrance into the high school is not only less fruitful in itself, but is also less easily adjusted to the other studies of the grammar-school course. The arrangement is also found to be advantageous from the point of view of the adjustment of the grammar-school and high-school courses to each other. In a city in which two years are given to Latin in the grammar school, the high school also will undoubtedly continue to give a four-year course. Pupils, then, who come up from the grammar schools with two years of Latin will in the high school find it possible to enter upon work which corresponds with that of the third, fourth, and fifth years of the six-year course, and will need to be taught separately from other high-school students only in the sixth year of their Latin study; in other words, immediately upon entering the high school they may be united with the second-year students in the four-year course. In large high schools separate sections need to be formed in any case for each Latin class, and probably it will be found advantageous to teach the students of the six-year course by themselves. In like manner, the adjustment of a six-year or five-year course to an already existing four-year course will be found easy in the case of academies and private schools.

A plan by which the work of the four-year Latin course may be correlated with that of the six-year course is indicated in the following diagram:

SIX-YEAR COURSE			
<i>Next-to-last grade in grammar school</i>		}	FOUR-YEAR COURSE
First year of Latin			
<i>Last grade in grammar school</i>		}	First year in high school
Second year of Latin			
<i>First year in high school</i>		=	Second year in high school
Third year of Latin		=	Second year of Latin
<i>Second year in high school</i>		=	Third year in high school
Fourth year of Latin		=	Third year of Latin
<i>Third year in high school</i>		=	* Fourth year in high school
Fifth year of Latin		=	Fourth year of Latin
<i>Fourth year in high school</i>			
Sixth year of Latin			

Led by the considerations which have been briefly presented above, the committee, after careful deliberation, has framed the three programs subjoined: one for a four-year course, one for a five-year course (in two forms), and one for a six-year course. We commend these programs to the consideration of the schools, hoping that they may not only be found convenient as standard or model courses, but may also contribute to the general advancement of sound education in the United States.

FOUR-YEAR LATIN COURSE

(Five periods weekly thruout the four years)

FIRST YEAR

Latin lessons, accompanied from an early stage by the reading of very simple selections. Easy reading: twenty to thirty pages of consecutive text.

In all written exercises the long vowels should be marked, and in all oral exercises pains should be taken to make the pronunciation conform to the quantities.

The student should be trained from the beginning to grasp the meaning of the Latin before translating, and then to render into idiomatic English; and should be taught to read the Latin aloud with intelligent expression.

SECOND YEAR

Selections from Cæsar's *Gallie War* equivalent in amount to four or five books; selections from other prose writers, such as Nepos, may be taken as a substitute for an amount up to, but not exceeding, two books.

The equivalent of at least one period a week in prose composition based on Cæsar.

Reading aloud and translating, together with training in correct methods of apprehending the author's meaning, both prepared and unprepared passages being used as material. The memorizing of selected passages.

THIRD AND FOURTH YEARS

Sallust's *Catiline*.

Cicero: six to nine orations (including the *Manilian Law*).

Ovid: 500 to 1,500 verses.

Virgil's *Æneid*; six to nine books.

The equivalent of at least one period a week in prose composition based on Cicero.

The reading of Latin aloud. The memorizing of selected passages.

FIVE-YEAR LATIN COURSE

FIRST FORM

(*Five periods weekly thruout the five years*)

FIRST AND SECOND YEARS

The same as the first year of the four-year course.

THIRD YEAR

The same as the second year of the four-year course.

FOURTH AND FIFTH YEARS

The same as the third and fourth years of the four-year course.

FIVE-YEAR LATIN COURSE

SECOND FORM

(*Five periods weekly thruout the five years*)

FIRST YEAR

The same as the first year of the four-year course.

SECOND YEAR

The same as the second year of the four-year course.

THIRD AND FOURTH YEARS

The same as the third and fourth years of the four-year course.

FIFTH YEAR

Virgil's *Æneid*: completed.

Cicero: *De Senectute* and *De Amicitia*; selected *Letters*.

The equivalent of at least one period a week in prose composition based on Cicero.

The reading of Latin aloud. The memorizing of selected passages.

SIX-YEAR LATIN COURSE

(*Five periods weekly thruout the six years*)

FIRST AND SECOND YEARS

The same as the first year of the four-year course.

THIRD YEAR

The same as the second year of the four-year course.

FOURTH AND FIFTH YEARS

The same as the third and fourth years of the four-year course

SIXTH YEAR

Virgil's *Æneid*: completed.

Cicero: *De Senectute* and *De Amicitia*; selected *Letters*.

The equivalent of at least one period a week in prose composition based on Cicero.

The reading of Latin aloud. The memorizing of selected passages.

COMPARATIVE TABLE SHOWING IN CONSPICUOUS THE CONSTITUTION AND CO-ORDINATION OF THE FOUR-YEAR, FIVE-YEAR, AND SIX-YEAR COURSES IN LATIN RECOMMENDED FOR SECONDARY SCHOOLS BY THE COMMITTEE OF TWELVE OF THE AMERICAN PHILOLOGICAL ASSOCIATION

Estimated average age of pupils	FOUR-YEAR COURSE	FIVE-YEAR COURSE	FIVE-YEAR COURSE	SIX-YEAR COURSE
12-13		<i>First and second years</i> AGE OF BEGINNERS ABOUT THIRTEEN YEARS Latin lessons. Easy reading.	<i>First year</i> AGE OF BEGINNERS ABOUT THIRTEEN YEARS Latin lessons. Easy reading. Written exercises. Training in understanding the Latin before translating. The reading of Latin aloud.	<i>First and second years</i> AGE OF BEGINNERS ABOUT TWELVE YEARS Latin lessons. Easy reading. Written exercises. Training in understanding the Latin before translating. The reading of Latin aloud.
13-14		<i>First year</i> AGE OF BEGINNERS ABOUT FOURTEEN YEARS Latin lessons. Easy reading. Written exercises. Training in understanding the Latin before translating. The reading of Latin aloud.	<i>Second year</i> Caesar: 4 or 5 books (an equivalent accepted for 1 or 2 books). Prose composition based on Caesar. The reading of Latin aloud. Training in translation, etc. The memorizing of selected passages.	<i>Third year</i> Caesar: 4 or 5 books (an equivalent accepted for 1 or 2 books). Prose composition based on Caesar. The reading of Latin aloud. Training in translation, etc. The memorizing of selected passages
14-15		<i>Third year</i> Caesar: 4 or 5 books (an equivalent accepted for 1 or 2 books). Prose composition based on Caesar. The reading of Latin aloud. Training in translation, etc. The memorizing of selected passages.	<i>Third and fourth years</i> Sallust's <i>Catiline</i> . Cicero: 6 to 9 <i>Orations</i> . Ovid: 500 to 1,500 verses. Virgil's <i>Aeneid</i> : 6 to 9 books. Prose composition based on Cicero. The reading of Latin aloud. The memorizing of selected passages.	<i>Fourth and fifth years</i> Sallust's <i>Catiline</i> . Cicero: 6 to 9 <i>Orations</i> . Ovid: 500 to 1,500 verses. Virgil's <i>Aeneid</i> : 6 to 9 books. Prose composition based on Cicero. The reading of Latin aloud. The memorizing of selected passages
15-16		<i>Fourth and fifth years</i> Sallust's <i>Catiline</i> . Cicero: 6 to 9 <i>Orations</i> . Ovid: 500 to 1,500 verses. Virgil's <i>Aeneid</i> : 6 to 9 books. Prose composition based on Cicero. The reading of Latin aloud. The memorizing of selected passages.	<i>Fifth year</i> Virgil's <i>Aeneid</i> completed. Cicero: <i>De Senectute</i> and <i>De Amicitia</i> ; selected <i>Letters</i> . Prose composition based on Cicero. The reading of Latin aloud. The memorizing of selected passages.	<i>Sixth year</i> Virgil's <i>Aeneid</i> completed. Cicero: <i>De Senectute</i> and <i>De Amicitia</i> ; selected <i>Letters</i> . Prose composition based on Cicero. The reading of Latin aloud. The memorizing of selected passages.
16-17		<i>Third and fourth years</i> Sallust's <i>Catiline</i> . Cicero: 6 to 9 <i>Orations</i> . Ovid: 500 to 1,500 verses. Virgil's <i>Aeneid</i> : 6 to 9 books. Prose composition based on Cicero. The reading of Latin aloud. The memorizing of selected passages.		
17-18				

APPENDIX B

ON THE ENROLLMENT OF PUPILS IN THE VARIOUS STUDIES IN THE PUBLIC AND
PRIVATE SECONDARY SCHOOLS OF THE UNITED STATES FOR THE YEARS 1890-98

Chap. xl of the *Report of the United States Commissioner of Education for 1896-97* (Washington, 1898) is devoted to the statistics of secondary schools, and contains comparative tables showing the percentages of pupils in the principal studies for each year from 1890 to 1897. In order to be able to exhibit the numerical totals as well as the percentages, and to bring the figures down to 1898, a member of the committee addressed an inquiry to Hon. William T. Harris, United States Commissioner of Education, who furnished the appended statistical table:

NUMBER AND PER CENT. OF STUDENTS IN THE PUBLIC AND PRIVATE SECONDARY SCHOOLS IN THE UNITED STATES PURSUING CERTAIN STUDIES, 1890-98

[illegible]

An examination of the Commissioner's report and these statistics brings to light the following interesting facts:

1. In the nine years covered by the table the total enrollment of pupils in the secondary schools of the United States has risen from 297,894 to 554,814. This is a gain of 86 per cent., a rate probably five times that of the increase in population.

2. The remarkable increase just noted is found mainly in the high schools,¹ the enrollment in which has increased from 202,963 to 409,443, a gain of more than 100 per cent. The enrollment in other secondary schools has risen from 94,931 to 107,633, a gain of only 13.5 per cent., the rate of increase being about the same as that of the increase of population.

3. The statistics show that in these nine years marked progress has been made toward the concentration of school work upon a few central studies, in place of the tendency toward scattering which was formerly manifest. The rate of increase in the number of students pursuing such studies as algebra, geometry, history, Latin, and German far exceeds the rate of increase in the total enrollment. This fact indicates that studies of central importance are receiving recognition of their proper place and value; while other studies are being relegated to a secondary position or altogether excluded from the schools. "Many hundreds of schools," says the Commissioner in his report, "which formerly offered courses of study made up of elementary and secondary branches, now confine their instruction strictly to high-school studies. This may be seen in the steady increase in the proportion of students pursuing these secondary studies."² So, too, in the private schools there are "indications of the strengthening of the secondary courses of study as in the case of the public high schools. Mixed courses made up of elementary and secondary studies are being replaced by courses in which only secondary studies proper are included. The demand for a better preparation of students for college is being met by private schools of secondary grade in all parts of the country."³

4. If now we arrange the studies of our table with statistics running from 1889-90 to 1897-98 according to the rate of increase in the enrollment of students pursuing them in the period extending from 1889 to 1898, we have the following order:

Studies	Enrollment in 1889-90	Enrollment in 1897-98	Per cent. of increase
1. <i>Latin</i>	100,144	274,293	174 —
2. <i>History</i> (except U. S.)	82,909	209,034	152 +
3. <i>Geometry</i>	59,781	147,515	147 —
4. <i>Algebra</i>	127,397	306,755	141 —
5. <i>German</i>	34,208	78,994	131 —
6. <i>French</i>	28,032	58,165	107 +
7. <i>Greek</i>	12,869	24,994	94 +
8. <i>Physics</i>	63,644	113,650	79 —
9. <i>Chemistry</i>	28,665	47,448	65 +

From these figures it appears that the study of Latin in the last eight years has gained in the enrollment of pupils at a rate greater than that of any other high-school study. The total gain of 174 per cent. is more than double the percentage of increase in the total enrollment of pupils in the schools. While the enrollment of pupils in Latin has thus increased 174 per cent., the increase of enrollment in German has been 131 per cent., and in Greek 94 per cent. In the same period the increase in the enrollment in physics has been only 79 per cent., and in chemistry only 65 per cent., a percentage smaller than that of the increase in the total enrollment in the schools.

¹ The figures for this are given up to 1897 in the Commissioner's Report, p. 1874.

² See Commissioner's Report, p. 1877.

³ See the same, p. 1880.

5. It is at least encouraging to the friends of classical study to notice that in 1897-98 almost one-half of all the pupils enrolled in the secondary schools (49.44 per cent.) were engaged in the study of Latin. With this general increase of interest in Latin studies undoubtedly will come also a fuller recognition of the importance of Greek as an educational instrument. In the next decade an even more rapid increase in the enrollment of students in Greek may be expected than the very promising one of 94 per cent. reported for the period covered by the table.

*REPORT OF THE COMMITTEE OF TWELVE OF THE
MODERN LANGUAGE ASSOCIATION OF AMERICA*

The committee appointed two years ago to make recommendations upon the subject of preparatory requirements in French and German has the honor to submit the following report :^{*}

SECTION I. PRELIMINARY

It will be remembered that the appointment of the committee grew out of a request of the National Educational Association, which has for some time been endeavoring to bring about a better regulation of secondary instruction in the subjects usually required for admission to American colleges. In pursuing this laudable undertaking the National Educational Association very properly saw fit to ask for the advice of various professional bodies, our own among the number. In particular, it was desired that we draw up model preparatory courses in French and German, and make recommendations concerning the practical management of these courses. The matter was brought to the attention of both branches of this association at the sessions of 1896, and we were asked to take appropriate action. As the business appeared to be of very great importance, it was thought best to turn it over to a large committee having a somewhat general mandate to investigate and report. The resolution under which the committee was appointed reads as follows :

That a committee of twelve be appointed (*a*) to consider the position of the modern languages in secondary education ; (*b*) to examine into and make recommendations upon methods of instruction, the training of teachers, and such other questions connected with the teaching of the modern languages in the secondary schools and the colleges as in the judgment of the committee may require consideration.

^{*} The report was submitted in December, 1898, to both branches of the Modern Language Association, but owing to its length it could not be read in its entirety. The chairman of the committee was accordingly directed to have the report printed and mailed to the members of the association, who would thus be in a position to consider the document intelligently and vote upon the question of its adoption at the session, or sessions, of December, 1899. At the same time permission was given to hand in the report, with the necessary explanation, to the Committee on College-Entrance Requirements of the National Educational Association.

That this committee shall consist of the present president of the association, Professor Calvin Thomas, as chairman, and eleven other members of the association, to be named by him.

That the association hereby refers to this committee the request of a committee of the National Educational Association for co-operation in the consideration of the subject of college-entrance examinations in French and German.

In pursuance of this resolution the committee was made up early in the year 1897, and began its work by preparing a circular, which was sent out to some 2,500 teachers. The object of the circular was to obtain information with regard to the present status of secondary instruction in French and German in the country at large, and also to elicit opinions with respect to a number of more or less debatable questions which, as was thought, would be likely to arise in the course of the committee's deliberations. Several hundred replies were received and collated, and the information thus obtained was laid before the committee at a session held in Philadelphia one year ago. We have not thought it wise to cumber this report, which will be long enough at the best, with a detailed recital of these statistics. Suffice it to say that, taken as a whole, they give us a picture of somewhat chaotic and bewildering conditions. Under various names our secondary schools have a large number of courses in which French and German figure as prominent or as subordinate subjects of instruction; courses of one, two, three, and four or more years; courses providing for two, three, four, or five recitations a week, and for recitation periods ranging from twenty-five to sixty minutes. And when we come to the colleges and higher scientific schools, the requirements for admission are hardly less multifarious. Various bachelor's degrees are conferred, and for admission to the courses leading to these degrees French and German figure variously, according as the modern language is offered in addition to the Latin and Greek of the classical preparatory course, or in place of Greek, or as the main linguistic study. Some of the colleges have also an elementary and an advanced requirement, with options variously managed.

Upon surveying the intricate problem thus presented, the members of the committee perceived at once that any report which they might make, if it was to be really useful, must be adapted, so far as practicable, to the conditions as they are. It was not for us to recommend radical changes in the American system, or lack of system, which has grown up in a natural way and must work out its own destiny. It was not for us to attempt to decide which of the various competing courses is the best course, or to antagonize any particular study. Nor could we assume to dictate to the colleges just how much knowledge of French or German, or both, they shall demand for admission to this, that, or the other undergraduate course. The colleges would certainly not consent to any surrender of their liberty to regulate their requirements in their own way. Most important of all, it was not for us to propose any arrangements which

could be taken to imply that secondary instruction in French and German exists only for the sake of preparation for college. The great majority of those studying the modern languages in school do not go to college at all. Our secondary education must be recognized as having its own function, its own aims and ideals. In the great mass of the schools those who are preparing for college receive instruction in the same classes with those who are not preparing for college. And this must always be so. These considerations seem to indicate that the proper line for the committee to pursue was as follows:

To describe a certain number of grades of preparatory instruction, corresponding to courses of different length; to define these grades as clearly as possible in terms of time and work and aim; and to make a few practical recommendations with regard to the management of the instruction—recommendations having as their sole object the educational benefit of the pupil. The members of the committee are naturally of the opinion that the study of a modern language in school has a distinct educational value of its own. The teacher's problem is to realize this value from the study. Whether the learner is going to college or not makes no difference, save as this consideration affects the amount of time he can devote to the modern language while preparing himself in the other necessary subjects. If such courses could be wisely drawn up, and if then they were to be recommended to the country upon the combined authority of the Modern Language Association and the National Educational Association, it seemed reasonable to expect that they would soon become the national norm of secondary instruction in the modern languages. It also seemed reasonable to expect that the colleges would be not only willing but glad to adopt the practice of stating their requirements in terms of the national grades. Such a mutual understanding between the colleges and the secondary schools should do much to bring a definitely understood order out of our existing chaos.

Having come a year ago to this general conclusion as to what could and should be done, the committee saw that it would be impossible to submit a satisfactory final report at the Philadelphia meeting. There were various matters that required further study. First, there was the question as to how many grades were really needed—whether two, or three, or more. Then there was the question of French and German in the lower school grades. This subject, it is true, had not been expressly committed to us; but it was known that many private schools, and not a few of our best public schools, already provide instruction in French or German in grades below the high school. It was also known that many good teachers strongly advocate this idea. But if it is wise to begin a modern language some time before the high school is reached, and if this practice is to be extended and to become more and more a part of our national system, it is evident that the modern-language work of the

secondary schools must be more or less affected. Again, there was the perplexing question of method. In view of the sharp differences of opinion and of practice known to exist among teachers, the committee thought it best, before undertaking to advise teachers how to teach, to re-examine the whole matter carefully in the light of experience and in the light of recent contributions to the subject, to the end that its final recommendations might be as free as possible from any vagaries of personal prejudice. Finally, there was the large task of drawing up the proposed courses and formulating the recommendations. Seeing all this work ahead, the committee decided, at the Philadelphia session, to report progress, ask for additional time and money, and, if this request should be granted, to appoint a number of subcommittees whose task it should be to inquire into and report upon the various questions just enumerated. The request was granted, and the committee adjourned after passing unanimously a single resolution, the import of which will be apparent from what was said a little while ago. The resolution was to the effect that secondary instruction in French and German should not be differentiated, according as the pupil is, or is not, preparing for college.

During the first half of the year 1898 the subcommittees worked at their several tasks by means of circulars and correspondence. Early in November a three-day session of the general committee was held in New York city. The meeting was attended by ten of the twelve members, two being unavoidably absent. The reports of the various subcommittees were received and discussed, together with other matters germane to the committee's general task. As a result of the three-days' discussion, the substance of the following report was agreed upon. Since the November meeting the report, as hereinbelow drawn up, has been submitted to the members of the committee, and, after some further interchange of views by mail, has been agreed to by them unanimously.

SECTION II. VALUE OF THE MODERN LANGUAGES IN SECONDARY EDUCATION

Aside from the general disciplinary value common to all linguistic and literary studies, the study of French and German in the secondary schools is profitable in three ways: first, as an introduction to the life and literature of France and Germany; secondly, as a preparation for intellectual pursuits that require the ability to read French and German for information; thirdly, as the foundation of an accomplishment that may become useful in business and travel. Under each of these heads a great deal might be said; but an exhaustive discussion of the several topics would swell the volume of this report beyond the limits within which it is likely to be most useful. A few words must therefore suffice.

What we have called the general disciplinary value of linguistic and literary study is well understood the world over, and has long been

recognized in the educational arrangements of every civilized nation. The study of a language other than the mother-tongue requires the learner to compare and discriminate, thus training the analytic and reflective faculties. The effort to express himself in the unfamiliar idiom, to translate from it into his own, makes him attentive to the meaning of words, gives a new insight into the possible resources of expression, and cultivates precision of thought and statement. Incidentally the memory is strengthened and the power of steady application developed. In time such study opens the gate to a new literature, thus liberalizing the mind and giving an ampler outlook upon life. Thru literature the student is made a partaker in the intellectual life of other times and other peoples. He becomes familiar with their manners and customs, their ideals and institutions, their mistakes and failures, and with the artistic forms in which the national genius has expressed itself. When he leaves school, such knowledge not only enriches his personal life, but makes him a more useful, because a more intelligent, member of society. It exerts a steadying, sanative influence, for it furnishes him with standards based upon the best performance of the race everywhere. For us Americans, with our large confidence in our own ways and destiny, there is special need of the wisdom that comes from familiarity with the life, literature, and history of the great makers of European civilization.

What has been said up to this point relates to the profit of linguistic and literary study in general, a matter about which there is no serious difference of opinion among intelligent people. When, however, we come to consider the relative value of the ancient and the modern languages, we raise a moot question over which there has been endless discussion. Here, again, we refrain from lengthy argument. Let it be remarked, however, that the question is a very large one, to be decided only in the light of long and wide experience. To reach a sane view of the matter it is necessary to make some allowance on both sides for the partisanship of the professional teacher, who is generally more or less prone to overstate the importance of his specialty. Nor should we allow too great weight to the views of publicists, men of letters, and so forth, who treat the question from a purely personal point of view. The man in middle life, who has the advantage of knowing just what knowledge is most useful to him in his own work, can usually look back upon his early education and tell a tale of neglected opportunities and misapplied energy. Educational arrangements must be made for the many, and human tastes, needs, and aptitudes are various. For the boy or girl who must select a course of study long before he or she can know just what special attainment will be the most useful in after-life, it is enough to be assured that the discipline and culture derived from the study of foreign languages, whether ancient or modern, will certainly prove valuable.

The committee is of the opinion that the best course of study for the

secondary school will always provide instruction in at least one ancient and one modern language. Beyond this we do not undertake to pass judgment upon the comparative merits of competing courses. It has always been the policy of the Modern Language Association not to antagonize the study of Latin and Greek. We ask for the modern languages in school and college nothing more than a fair chance to show what they are worth. We believe that they are worth, when properly taught, no less than the ancient languages.¹ It is, of course, conceded that the Latin and Greek are the more "difficult" in the initial stages. But difficulty cannot be the highest test of educational utility, else Latin and Greek should themselves give way to Sanskrit and Chinese. Evidently it is the goodness of the kernel, and not the thickness and hardness of the shell, that we are mainly to think of. The kernel is the introduction to the life and literature of a great civilized people, which it is, for some reason, very important for us to know about. And here it may properly be urged on behalf of the modern languages that, just in proportion as they are easier to acquire, the essential benefit of the acquisition is the sooner realized. They give a quicker return upon the investment. This is a consideration that is of special importance for the secondary school. It is quite possible in an ordinary school course to learn to read French and German easily. The high-school graduate who has acquired this ability can at once turn it to account, even if he does not go to college. If he allows his ability to slip from him thru lack of practice, it is at least his own fault. In the case of the ancient languages, on the other hand, it is a well-understood and oft-lamented fact that the great majority, even of college graduates, never learn to read Latin and Greek with ease. Up to the last the effort is more or less painful. After leaving college they usually drop their Latin and Greek, and in a short time they cannot read at all. The profit of the study thus reduces, for the many, to its purely gymnastic value. That value, we are prepared to admit, is very great; but we would urge that the purely gymnastic value of the modern languages is, potentially, also very great. The argument of "difficulty" is often misused. There may be as much valuable exercise in walking five miles up a gentle slope as in climbing a mile up a sharp acclivity.

The first and greatest value of the study of the modern languages must be looked for, then, in the introduction of the learner to the life and literature of the two great peoples who, next to the English stock, have made the most important contributions to European civilization. That these literatures are as important, as worthy of study, as full of instruction for the modern man and woman as are those earlier literatures that once formed the great staple of education, is a proposition that we do not

¹ "It seems to me that the teaching of modern languages in many of the schools . . . has now reached such a stage that we may fairly say that a training in French or German, or both, can be given which is just as substantial, strong, and useful a training as any other that is given in the same period." (President Eliot, *Educational Reform*, p. 378.)

think necessary to argue, tho it is sometimes denied *in toto* by zealous advocates of classical study. For the peculiar intellectual myopia that can see nothing new and nothing good in modern literature the only remedy is the classical hellebore.

We attach greatest importance, then, to linguistic discipline and literary culture. But the ability to read French and German has also another value not directly connected with the study of *belles-lettres*. In nearly all branches of knowledge at the present time a large part of the best that has been written is to be found in the German and French languages. One who wishes to study anything thoroly, no matter what, finds it highly convenient, if not absolutely necessary, to be able to read these languages in the pursuit of information. The high-school graduate who brings this ability with him to college has a great advantage in that he can at once begin to use it as a tool in prosecuting his studies. Of those who do not go to college it is fair to presume that a considerable portion will continue some line of private study, if not as a vocation, then as an avocation. For all such the ability to read French and German will be of great service.

It is next in order to remark briefly upon what is popularly called the "practical" value of French and German, that is, their utility as a means of intercourse. The practical command of a foreign language has a potential value that is at once perceived by everyone. It is felt to be desirable by multitudes who would probably care but little for the considerations presented in the preceding paragraphs of this section. The committee holds, however, that in our general scheme of secondary education the ability to converse in French or German should be regarded as of subordinate importance. We by no means say that it should be ignored, or that colloquial practice may safely be neglected in teaching. With this point the report will deal further on. Here we merely express the opinion that the ability to converse should not be regarded as a thing of primary importance for its own sake, but as auxiliary to the higher ends of linguistic scholarship and literary culture. The grounds of this opinion are briefly as follows:

The practical command of a living language, such as will be really useful for the ordinary purposes of life, presupposes a large amount of practice in speaking. The requisite amount of practice cannot possibly be given in an ordinary school course, even in a course of four years in length, in which the pupils come together four or five times a week, perhaps in classes of considerable size, remain with the teacher for three-quarters of an hour, and the rest of the time speak English. With the most skillful teachers, working with the best methods that can be devised, and concentrating their effort upon the one aim of teaching the pupil to talk, the results of such a course, unless the work of the school is supplemented by practice at home, is only an imperfect command of the

language, which is of little use outside the class-room. Meanwhile the concentration of effort upon this one object necessarily involves the neglect of other things that are of more importance in the end. For it must be remembered that the process of learning to speak a foreign language has no educational value except as it is connected with, and grows out of, the improvement of the mind.

In the second place it is to be remarked that, while in certain European countries, by reason of their geographical position, or the character of the population, it is of very great practical importance that the rising generation learns to speak two or three languages with facility, the conditions in the United States are different. If it were possible in the secondary school to impart a good practical command of French, it is evident that all but a minute proportion of those leaving school with this accomplishment would soon lose it for lack of occasion to use it. We have, it is true, a number of communities in which the ability to speak German is highly convenient, and may even have a local market value. But nowhere in the United States is this ability indispensable. The English language is the vernacular of the country and the medium of our civilization, and we wish it to become more so, rather than less so, with the lapse of time. So far as purely practical considerations go, it is for those who come to us to learn our language, not for us to learn theirs. If we teach a foreign language in our schools, it should be for the sake of its general educational value. At the same time, its potential value as a means of intercourse may very properly be kept in view. One who has received the best training that the secondary school can give may not be able to speak his modern language with facility for the practical purposes of life; but he will have been started in the right way, will have obtained a good general knowledge of the language, and will have had some practice in speaking. If, then, after leaving school, he needs to be able to speak the language, he has an excellent foundation on which to build. Proficiency will come rapidly with practice.

SECTION III. A CRITICAL REVIEW OF METHODS OF TEACHING

THE GRAMMAR METHOD

When the modern languages first became a regular subject for serious study in secondary schools, it was natural that teachers, having no other model to imitate, should adopt the time-honored plan followed in the department of Greek and Latin. According to this method the pupil is first put thru a volume of paradigms, rules, exceptions, and examples which he learns by heart. Only when he has thoroly mastered this book is he allowed to read; and even then his reading is usually regarded as a means of illustrating and emphasizing grammatical principles, rather than as a source of inspiration or of literary education. The amount of foreign

literature studied by the class is, moreover, extremely small; but it is all carefully analyzed and translated, every lesson being, in general, repeated several times. Composition is used as an instrument for increasing still more the student's familiarity with inflections and rules. The foreign language is never spoken, and pronunciation is considered unimportant.

This method has fallen into discredit; and while it is not yet entirely banished from classical instruction, it can scarcely be found, in its original purity, among the modern-language courses of any civilized region. It has, however, certain undeniable advantages. In the first place it trains the mnemonic faculty; in the reaction against the hard, unattractive schooling of our fathers, modern pedagogical fashion has gone so far that the power of conscious acquisition and retention is hardly exercised at all; children go to college or out into life with an embryonic memory, and the teacher's task rivals the labor of the Danaïdes. Secondly, the careful study of grammatical rules and their nice application in translation and composition form one of the best possible exercises in close reasoning. It may be urged that logical processes are not natural to the child; neither are they natural to the uninstructed adult; but to be a successful student or an intelligent citizen, a boy or man must be able to arrive at rational conclusions. Hence it is one of the chief duties of education to afford practice in clear and orderly thinking. The principal value of arithmetic and algebra as secondary-school studies lies in the fact that in them right and wrong reasoning are immediately and unmistakably distinguished by their results. In most subjects the white and black are not so clearly defined; between them lies a broad gray zone, the region of "not quite correct" and "not altogether bad," and it is toward this neutral belt that nearly all the pupil's efforts bend. The children "don't see why" their answer is not as good as any other, and the sloth and slovenliness native to the untrained human mind remain undisturbed. Now, grammatical analysis and synthesis, while less mechanical and more varied in their operations than elementary mathematics, are nearly or quite equal to it as a means of inculcating the habit of accurate ratiocination.

On the other hand, the grammar method is open to criticism on the ground that it neglects two of the most important objects of foreign-language study: the broadening of the mind thru contact with the life, the ideas, and the forms of thought and expression of different times and countries; and the cultivation of the artistic sense by the appreciative study of literary masterpieces. A still more potent objection is the contention that pure grammar is not calculated to inspire interest in pupils of the high-school age. This objection seems to be well founded, and, if so, it is a fatal one; for modern pedagogy, if it has accomplished nothing else, has established the fact that interest is absolutely essential to the performance of the best work in any field. It appears, then, that the day of the pure grammar method is past; but while devising a system more in accordance

with the principles and the possibilities of our time, let us not forget that the old-fashioned way had its good features.

THE NATURAL METHOD

At the opposite pedagogical pole from the process just described, we find the conversational or "natural" method. This educational "naturalism" is a reaction against the inflexible systematism of earlier teachers; we should, therefore, expect it to be somewhat aggressive and somewhat formless, more given to pulling down than to building up. It is a principle, an impulse, rather than a plan; and its products depend, to a greater extent than those of any other school, on the personality of the instructor. Too often the results of a protracted and supposedly successful course of unalloyed conversation are a rapid but unintelligible pronunciation, the fluent use of incorrect forms, and, worst of all, a most discouraging self-complacency. Some peculiarly gifted teachers have succeeded in combining alertness with a reasonable degree of accuracy, but it will probably be found, in all such cases, that the instructor has resorted to devices not strictly "natural."

What is the genuine "natural method"? In its extreme form it consists of a series of monologs by the teacher, interspersed with exchanges of question and answer between instructor and pupil—all in the foreign language; almost the only evidence of system is the arrangement, in a general way, of the easier discourses and dialogs at the beginning and the more difficult at the end. A great deal of pantomime accompanies the talk. With the aid of this gesticulation, by attentive listening, and by dint of much repetition the beginner comes to associate certain acts and objects with certain combinations of sound, and finally reaches the point of reproducing the foreign words or phrases. When he has arrived at this stage, the expressions already familiar are connected with new ones in such a way that the former give the clue to the latter, and the vocabulary is rapidly extended, even general and abstract ideas being ultimately brought within the student's comprehension. The mother-tongue is strictly banished, not only from the pupil's lips, but, as far as possible, from his mind. Not until a considerable familiarity with the spoken idiom has been attained is the scholar permitted to see the foreign language in print; the study of grammar is reserved for a still later period. Composition consists of the written reproduction of the phrases orally acquired.

This method—if "method" is the proper term—is based on two general ideas; one true, the other false. The first is the belief that the interest so necessary to the successful prosecution of any study (and especially of language work) can most easily be aroused by the actual spoken use of the foreign tongue. The second is the theory that a boy or man can best learn a new language in the manner in which an infant

first acquires its native speech. Hence comes the epithet "natural." The advocates of this view overlook, first, the fact that the child requires eight or ten years of incessant practice to gain even a tolerable command of its own tongue, and, secondly, the vast difference between the mind of the baby and that of the youth. The really natural methods of acquisition at these two stages of development are almost diametrically opposed. Let us consider, for instance, the learning of pronunciation. The newborn child, after various unsuccessful experiments, reproduces sounds correctly because it has no previous habits of speech to contend with. The boy or man, unless he is phonetically trained, or exceptionally acute of hearing, does not imitate at all. He merely substitutes for the several strange vowels and consonants the English sounds which the foreign ones happen to suggest to him. That is why the pronunciation of conversational classes is generally not a whit better than that of scholars taught after the most antiquated fashion. In the attempt to inculcate the other elements of speech — inflections, syntax, and phraseology — the purely imitative process shows itself to be almost equally inadequate. We may justly urge, furthermore, against this style of teaching, that it provides little discipline for the intelligence; that it affords only the poorest kind of mnemonic training; that it favors vagueness of thought and imprecision of expression, and, finally, that it sacrifices the artistic interest of language study to a so-called "practical" one. On the other hand, it certainly does awaken enthusiasm among its disciples, and it stimulates and holds the attention.

The natural method has been vehemently attacked and just as vigorously defended. At present the violence of the contest has abated, and we are able to judge dispassionately the results of its introduction into our educational life. Those results have been mainly good. In summer schools and other institutions that have used the imitative process exclusively most of the pupils are persons who have had or will soon get some practice in grammar and reading. For them the conversation lessons are supplementary and form a useful addition to their training. In schools and colleges that have not accepted the "naturalistic" theory the fame of the new method has obliged teachers to adopt some of its practical features, thus bringing much needed life and variety into their instruction. It seems probable that the next generation will regard "naturalism" rather as a vivifying influence than as an independent method.¹

THE PSYCHOLOGICAL METHOD

Out of the conviction that modern-language study should be made attractive, and out of the desire to adapt instruction to the known workings of the human mind, has come a system that seems more deserving of

¹ For a description of the natural method see *Der Leitfaden für den Unterricht in der deutschen Sprache*, by G. Heness, and L. Sauveur's *Introduction to the Teaching of Living Languages*. The method is well exemplified, not only in the *Leitfaden*, but in *Der Sprachlehrer unter seinen Schülern*, by Heness, and in Sauveur's *Causeries avec mes élèves* and *Petites causeries*. All these works are now published by Messrs. Henry Holt & Co., of New York.

serious attention than the grammar method or the "natural" style of teaching. This is the system invented by Gouin and brought into general notice by Bétis.¹

The psychological method rests on the principle of the association of ideas and the habit of "mental visualization." The whole current vocabulary of a language, in the form of short, idiomatic sentences, is divided up into groups, every group consisting of phrases that are intimately connected in subject. One group forms a lesson. These brief divisions are gathered together in chapters, each of which treats of one general topic, and several chapters make a "series." When a pupil has gone thru all the series, with numerous reviews, he will have mastered (so we are told) the whole spoken language. Every lesson is first worked out orally and then studied by the pupil from his book. On presenting each new word to the beginner the instructor exhorts him to close his eyes and form a distinct mental picture of the thing or act represented. This image (it is affirmed) will remain indissolubly connected with the word, and the evocation of the one will always recall the other. Sometimes real objects or drawings are used, and pantomime is frequently resorted to; but in most cases reliance is placed on the child's active imagination. It is never considered a sin to put in a word or two of English, and at the outset that language is very freely employed. Altho most of the talking is done by the teacher, the pupils are constantly called upon to repeat his sentences and to answer questions. After the first lessons written compositions may be prepared, made up of phrases already acquired. Grammatical instruction is begun early, concurrently with the other exercises, but the reading of consecutive texts is postponed until the bulk of the ordinary vocabulary has been learned. Many innovations have been introduced into the presentation of grammar, but most of them are more radical in appearance than in reality. Some, however, are extremely ingenious, and will doubtless be copied by instructors who do not see fit to adopt the whole system.

The Bétis method has the following obvious advantages: it trains the memory; it fascinates the student and holds his attention more closely than any other mode of teaching now in vogue; it gives the pupil, in a reasonably short time, a ready command over a large, well-arranged, and well-digested vocabulary; it affords, thru some of its conversational groups, an

¹ Its operation and results are described at considerable length in *Die neueren Sprachen*, by R. Kron, in III, 1, 2, 3, 4, 5, 6 (published separately under the title *Die Methode Gouin, oder das Serien-System in Theorie und Praxis*, Marburg, 1896), and by V. Knorr in III, 8, and V, 9. The method has been subjected to a searching criticism by Traugott in the same periodical, VI, 6. It should be said here that Bétis has considerably altered the original plan; and opinions are divided concerning the respective advantages of the two versions. The real Gouin system can be studied in the author's *Art d'enseigner et d'étudier les langues*, Paris, 1880 (third edition in 1897); the Bétis or "psychological" method is illustrated by a volume called *The Facts of Life* (New York, 1896), by Bétis and Swan. Without presuming to pass judgment on the merits of the case, we shall confine ourselves to the revised plan, since that is the one more widely known and the only one that has been tried in America. It was brought to the attention of the English-speaking world in 1892 and 1893 by the articles of W. T. Stead, in the *Review of Reviews*. In the years 1895-97 it was used in Boston, Mass., by Bétis himself, and it is now on trial in one of the public high schools of the same city.

insight into the life of a foreign country. As for the other side, the system seems, as far as we can ascertain the facts, to lay itself open to these criticisms: it affords but little opportunity for the exercise of judgment; it entirely neglects, in the first years, the cultivation of the æsthetic sense, and assigns literary study to a stage which high-school pupils will scarcely ever reach. Moreover, its treatment of pronunciation is decidedly unsatisfactory; but this defect can probably be remedied without disturbing the rest of the scheme.

THE PHONETIC METHOD

Pronunciation, neglected in the three modes of instruction just mentioned, is the very foundation of a system that has of late years attracted attention in all northern Europe, and has gained a considerable footing in Germany and Scandinavia.¹ Its advocates, while not entirely free from the intolerance and the self-confidence so characteristic of enthusiastic reformers, are men of sound scholarship, successful experience, and good standing in the educational world. As far as can be ascertained, they have arrived at results which go far toward justifying their seemingly extravagant claims. There have been few attempts to introduce the phonetic teaching in this country; probably the most extensive trial of it has been made at the Johns Hopkins University.

The phonetic method resembles the "natural" and the "psychological" schools in that it takes the modern spoken language as a basis, and at first relies mainly on oral instruction, using, as far as possible, the foreign language itself as a medium of communication. Unlike most "conversation" courses, however, it is very systematically constructed, and its beginning is strictly scientific. It begins with a training of the ear and the vocal organs, the pupils being thoroly drilled in the vowels and consonants of the strange tongue. These sounds are considered both as isolated phenomena and as elements of idiomatic phrases. The phrases, in turn, are combined into dialogs, descriptions, and stories. At this stage printed texts are used, but only in phonetic notation. The ordinary

¹ The names by which it is known are the "reform," the "new," and the "phonetic" methods. It was outlined by Viator in his famous monograph *Der Sprachunterricht muss umkehren* (1882, new edition, Heilbronn, 1886), and its principal features are set forth on the cover of every number of the *Maître phonétique*. Both this periodical (the organ of the Association Phonétique Internationale) and *Die neueren Sprachen*, edited by Viator, are devoted to the propagation of the phonetic method. The list of publications — books, pamphlets, and articles — which deal with the "reform method" is very large. A complete bibliography down to 1893 is given by H. Breymann in *Die neu sprachliche Reform-Litteratur von 1876-1893*: Eine bibliographisch-kritische Uebersicht (Leipzig, 1893). Two articles by leading exponents of the method have appeared in American journals, viz., "A New Method of Language Teaching," by W. Viator, in the *Educational Review*, Vol. VI, p. 351, and "Phonetics and Reform Method," by A. Rambeau, in *Modern Language Notes*, Vol. VIII, p. 161. An excellent report of observations made during a six-months' tour of inspection of German schools is given by Mary Brebner in *The Method of Teaching Modern Languages in Germany* (New York: Macmillan, 1898). A conservative, and, at the same time, fairly representative, presentation of the aims and methods of the "reformers" is given by W. Münch in his and F. Glauning's *Didaktik und Methodik des französischen und englischen Unterrichts*, Sonderausgabe aus A. Baumeister's *Handbuch der Erziehungs- und Unterrichtslehre für höhere Schulen*. On pp. 102 f. is to be found a select list of the more important writings on method in modern-language teaching which have appeared in recent years.

spelling is carefully kept from the students during the elementary period. It is said that the transition from sound symbols to standard orthography presents no serious difficulty. Objects, pictures, and maps are constantly displayed, and every effort is made to familiarize the class with the surroundings, the institutions, the habits, the character, and the mode of thought of the people whose language it is learning. The phonetic texts gradually increase in length and difficulty, and some of the latest are representative of literature. Inflections and syntax are studied inductively. Composition consists first of the oral and written reproduction of matter already heard or read, then of combinations of familiar phrases. Systematic grammar is reserved for a late stage, and translation comes last of all.

It is evident that this sort of instruction requires a special preparation and a special apparatus. Altho the pupils are not taught phonetics, it is essential that the teacher be something of a phonetician; and the present difficulty of obtaining adequate instruction in the science of speech-sounds has doubtless done much to hinder the rapid general adoption of Vietor's program. Let us hope that in the near future such training will be brought within the reach of all by means of courses conducted, in our universities and in our summer schools, by men who unite with the necessary scientific attainments a practical knowledge of the requirements of American pedagogy. Phonetic texts, too, tho not absolutely indispensable, are of the greatest assistance.¹

This method, while it lacks the logical discipline of the old grammatical instruction, is more successful than any other in forming a good pronunciation and in giving pupils a ready and accurate control of the spoken language. The training it affords can hardly fail, moreover, to improve the quality of the student's voice and his enunciation of his mother-tongue. From the standpoint of mnemonic education, too, it ranks high. In stimulating interest it is nearly equal to the "natural" and "psychological" courses, and it is second only to the latter in holding the attention. The training of the attention should, by the way, be regarded as an important part of any pedagogical scheme; for the habit of inattention—the utter inability of pupils to fix their minds on anything for more than a few minutes at a time—is the most serious obstacle that confronts our secondary teachers. The attempt to give scholars, by ear and eye, by description, and by the use of objects and pictures, a correct and vivid idea of foreign life has been carried farther by the phoneticians than by any other school; but there is no reason, save the lack of rightly prepared instructors, why this feature should not be introduced into every method; the neglect of it defeats one of the principal objects of modern-language study. Another means to the same end is the system

¹Some good ones are already available: For French, by Beyer and P. Bassy. Rambeau and J. Passy have provided us with suitable chrestomathies. In German we have a little book by Vietor. The *Maître phonétique*, furthermore, is constantly furnishing material in various languages.

of international correspondence between school children of different countries.¹

What are the disadvantages of the "phonetic" plan, when we consider it from the point of view of our American high schools? In the first place, it seems, like other "oral" methods, to overlook the importance of literary education, for it postpones the reading of real books to a stage that is beyond our secondary period. In Europe, where intercourse between foreign countries is easy and frequent, and a command of several languages has a recognized commercial value, it is natural that a practical mastery of the strange tongue should seem highly desirable. With us, isolated as we are, a speaking knowledge of French and German has, except for teachers, but little pecuniary worth; and even in the case of a student, who has acquired it for pleasure alone, the opportunities for practice are so few that his hardly won accomplishment will soon slip from him. Familiarity with pronunciation and a certain ability to handle foreign constructions are, indeed, essential to a proper appreciation of the literature; but if literary study is not reached, of what avail is the preparatory training? For we must bear in mind that the vast majority of our pupils—those for whom the course should be planned—will not continue their education beyond the high school. It has been pointed out that oral work, besides exercising the organs of speech, arouses interest and fosters a certain alertness of mind, and is therefore valuable for its own sake. We may question, however, whether these benefits make up for the sacrifice of all the æsthetic culture and the intellectual broadening that come only from the reading of good books.

To this criticism the European advocates of the method would surely reply that they believe in abundant reading, after the student has mastered the spoken idiom. It appears, then, that the real fault of their program, as applied to our conditions, is not so much that its underlying

¹ Mentioned by Vietor in *Die neueren Sprachen*, V, 3, 165, and described by Professor Magill in *Modern Language Notes*, XIII, 3. The plan was first suggested in the *Revue universitaire* for June, 1896, by Professor P. Miclle, who gave an account of his efforts to bring about an interchange of letters between French children studying English and English children studying French. His idea attracted immediate attention in France and England, ere long also in Germany, Italy, and the United States, and it was soon perceived that it could be turned to profit, not only for school children, but also for adults, especially for teachers. Having already been tried on a large scale, the plan has passed the experimental stage, and may be confidently recommended as a valuable aid in the learning of a living language. At first, correspondents could be secured only thru certain journals, which published lists of names in consideration of a subscription. Later, on the initiative of the *Manuel général de l'instruction primaire*, a large committee was appointed, which now undertakes gratuitously to bring correspondents together. The vice-president of the English section for women is Miss E. Williams, professeur aux Écoles de Sèvres et de Fontinay, whose address is No. 6 rue de la Sorbonne, Paris. Miss Williams' secretary, who conducts her correspondence, is Mme. Rossignol, 117 rue Notre Dame de Champs, Paris. The vice-president of the English section for men is Professor A. Mouchet, 16 rue de St. Guillaume, Asnières (près Paris). Either of these three can be addressed by American teachers desiring French correspondents for themselves or for their pupils. In Germany the plan has been taken up prominently by Dr. K. A. Martin Hartmann, of Leipzig, who has reported upon a trial of it in the Saxon schools and published a body of *Vorschläge* relating to it. The advantages of the system are well set forth by Petri in *Die neueren Sprachen*, VI, 511, and objections to it are answered by Hartmann in the same journal, VI, 324. A second and more extended article by Professor Edward H. Magill, of Swarthmore College, Pennsylvania, may be found in *Modern Language Notes* for February, 1899.

principle is entirely incompatible with our creed as that it calls for much more time than we allot to foreign language. In fact, we may well doubt whether, with our three or four hours a week for three or four years, our scholars would ever reach the end even of the elementary stage; they certainly would not go beyond it; their acquisition would be only a fragment. If we should wish to introduce this or any other thoroughgoing method, we should be obliged to increase the importance of French and German in the school curriculum; and such increase is desirable from every point of view. Not only should the pupils who are intending to continue these studies in college receive the best possible preliminary training, but all children who begin the subjects at all should give them time enough to admit of an extended course, conducted according to the most enlightened principles. In order to gain the necessary hours, the foreign language must be taken up earlier, or some other high-school topic must be sacrificed. A few things thoroly and intelligently done make the best secondary discipline. As long, however, as our present conditions last it is clear that we must give up something. Until we are all willing greatly to lengthen the time given to the linguistic part of our children's education, we shall have to renounce the idea of a full, well-rounded knowledge of French and German, and, selecting the portion of the subject that appears most important for the greatest number, devote ourselves to the cultivation of that restricted field. Considerations of this nature have led many thoughtful teachers to adopt a mode of instruction that we may call the "reading method."

THE READING METHOD

The title explains itself. The study of texts from the very beginning of the course, abundant practice in translation at sight, leading ultimately to the ability to read the foreign language with ease and without the interposition of English, are the principal features of this program. Grammar and composition are regarded merely as a help to reading, and are reduced to the essentials; sometimes accidence and syntax are first learned inductively, but oftener a small text-book is used concurrently with translation. Great importance is attached to the use of good English in the renderings. Pronunciation receives scant attention; there is little or no oral exercise.

This method has been much used of late in our schools and colleges, especially in those that have large classes, a short course, and an American teacher. The great advantage of the process is that it quickly enables the student to read French and German literature—not with the complete appreciation that only an all-around command of the language can give, but with the same kind of intelligence and enjoyment with which good classical scholars read Latin. Indirectly it helps the pupil to form a good style, and to increase the volume and precision of his English

vocabulary ; it cultivates the taste by dwelling upon delicacies of expression ; it exercises the memory thru the enforced retention of words and idioms ; it trains the linguistic sense by calling attention to the points of resemblance and differences in various tongues ; and the exact fitting of phrase to thought forms an excellent discipline for the judgment.

On the other hand, in addition to the fact that it deals with only one aspect of language, the reading method is lacking in vivacity and in stimulus to the attention ; it interests only the more serious pupils. Moreover, the continued use, year after year, of an easy way of teaching — for it is comparatively easy, and requires but little special training — may prove demoralizing to the instructor, dull his appetite for self-improvement, and make him indolent and easily satisfied with his qualifications.

SECTION IV. METHOD AS RELATED TO THE PREPARATION OF TEACHERS

If all our classes were in the hands of born teachers, ideally prepared for their work, advice with respect to method would be quite superfluous. Every teacher would create for himself the method best suited to his class and to his own peculiar gifts. His personality would infuse life and efficacy into any process he would be likely to adopt. But in a profession so widely pursued we cannot expect the majority of its followers to show genuine vocation. The most of our teachers are made, and we must see to it that they be as well made as possible. It cannot be too strongly urged upon school authorities that, if modern-language instruction is to do the good work which it is capable of doing, it must be given by thoroly competent teachers. The committee's investigations show, and it is a pleasure to testify to the fact, that we already have a goodly number of secondary teachers who answer to that description. Nevertheless, our general standard is still far too low. For some time to come the majority of our teachers will necessarily be guided to a large extent, in the choice of methods, by the consideration of their own competence.

But, while it is easy to insist, broadly, upon the importance of adequate preparation for teachers, it is not so easy to define, in exact terms, the minimum of attainment which can be regarded as sufficient. Much will always depend upon personality, upon general alertness of mind, and aptitude for teaching. The best of teachers learn with their pupils, and it will sometimes happen that one who knows too little of his subject will teach it better than another who knows more. Nevertheless, it remains broadly true, and should never be forgotten for a moment, that what the teacher most needs is to be a master of his subject. With the sense of all-around mastery come independence of judgment and the right kind of self-assurance. Without this sense the attempt to follow someone else's method, however good the method may be in the hands of its inventor, can never produce the best results.

To be ideally prepared for giving instruction in a modern language, even in a secondary school, one should have, aside from the ability to teach and the general culture necessary to secure the respect and attachment of pupils, a thoro practical command of the language to be taught, a solid knowledge of its literature, and a first-hand acquaintance with the foreign life of which the literature is the reflection. To be decently prepared, he should, at least, have read so much in the recent literature of the language that he can read about as easily as he would read matter of the same kind in English. He should have studied the principal works of the great writers, and should have taken a course in the general history of the literature. He should know thoroly the grammar of the language in its present form. If he has some knowledge of the historical development of forms, such knowledge will help him in his teaching, especially in the teaching of French to pupils who have studied Latin. He should be able to pronounce the language intelligently and with reasonable accuracy, tho he may not have the perfect "accent" of one who is to the manner born. He should be able to write a letter or a short essay in the language, without making gross mistakes in grammar or idiom, and to carry on an ordinary conversation in the language without a sense of painful embarrassment. Even this degree of attainment will usually require residence abroad of those for whom English is the mother-tongue, unless they have enjoyed exceptional opportunities in this country. In any case, the residence abroad is greatly to be desired.

In insisting that secondary teachers of a modern language should be able to speak the language with at least moderate facility and correctness, the members of the committee are well aware that they set up a standard higher than that which has very generally been deemed sufficient. But it is a standard to which we must come. Many of the best schools have already come to it. Nor need we fear that such a standard will result permanently to the advantage of the foreign-born teacher in the competition for positions. If we leave out of account cases of exceptional individual talent for teaching, the general principle holds good that the best teacher of a foreign language is a person of the same nationality as his pupils, who is thoroly at home in the language to be taught. The American-born teacher will thus have a substantial advantage over his foreign-born competitor, but he cannot afford to be vulnerable in so vital a point as the practical command of the language in which he undertakes to give instruction.

To many of our teachers residence in Europe will probably seem out of the question. Those who, by dint of thrift and sacrifice, contrive to cross the ocean can now enjoy fine opportunities in the way of summer courses at Paris, Geneva, Jena, Marburg, Greifswald, and elsewhere. The others must content themselves, for the time being, with a somewhat inadequate equipment, the defects of which, however, can be to a great extent

remedied by the reading of well-chosen books, by work in American summer schools, and by association with foreigners in this country. It is to be hoped that our colleges and universities will recognize, more largely than they have heretofore recognized, the need of practical courses for teachers of the modern languages.

With respect, now, to the main subject of this section, it is hardly necessary to observe that the teacher who cannot himself speak his modern language should not attempt seriously to teach his pupils to speak it. He should not try to work the "natural method," or any private variation thereof; if he does, he will be almost certain to do more harm than good. He may and should provide memory exercises that exhibit natural colloquial forms, but in so doing he should be guided by some good manual, and make that the basis of the class-room work. The native German or Frenchman will naturally think that success will be easy for him in a "conversation" course, but it is for him to remember that he can accomplish nothing worth while without system; that he must have the proper books; that he cannot comprehend his pupils' difficulties unless he knows English well, and that he can never govern his class unless he has a sympathetic understanding of American character. For the "psychological," and still more for the "phonetic," program special study is necessary, and no one, foreigner or native, should imagine that he can cope with such a method off-hand.

But if the availability and goodness of the several methods described in the preceding section depend mainly upon the fitness of the teacher, they also depend upon the age of pupils, the probable length of the course, and the size of classes. If the study begins in childhood, and the beginner is looking forward to a long and thoro course of the best possible kind, it is obviously the right thing that he devote a large amount of time at first to the acquisition of a faultless pronunciation and an easy command of the colloquial language. He will then have the best possible foundation for literary study. But if he begins later in life and the problem is to realize the maximum of benefit from a limited course, he should devote less time to the colloquial language and proceed more quickly to the study of literature. It is also evident that in classes of considerable size the most efficient colloquial practice cannot be given; the pupils may learn to understand the language (and this is, of course, well worth while), but they will not learn to speak with much facility. If this report were intended to meet ideal conditions, that is, if it were addressed to teachers whose training would permit them to choose freely from the methods that have been described and to combine them with wise discretion, the committee might be disposed (altho in that case, as we have already remarked, advice with regard to method would hardly be needed) to make some such recommendations as the following: For very young children, say up to the age of ten, the "natural" or imitative method of the nurse or

the governess, with some help, perhaps, from the "psychological" method. For a course of six years, beginning, say, at the age of twelve, a combination during the first three years of the "psychological" and "phonetic" methods, accompanied by some study of grammar; after that a more thorough study of grammar, together with the reading and translation of good literature, supplemented by oral practice in the language and written composition. For a four-years' course, beginning in the high school, we should recommend a similar procedure, the division between the "psychological-phonetic" and the "reading" methods coming, however, somewhat earlier, say, after the first year. In combining the "psychological" and "phonetic" methods the general plan of the former would be followed, while the latter would be imitated in its treatment of pronunciation and, so far at least as French is concerned, in its use of phonetically transcribed texts. For any shorter course we should advise the "reading" method, accompanied, however, by scientific training in pronunciation, drill in the rudiments of grammar, and a moderate amount of oral practice.

Recognizing the somewhat idealistic character of these recommendations, the committee will present further on a scheme of secondary courses, with suggestions relating thereto, which are meant to be adapted to existing conditions. First, however, it is necessary to deal briefly with another subject, or rather with two closely related subjects, which are more or less involved in any consideration of the modern languages in secondary education.

SECTION V. MODERN LANGUAGES IN THE PRIMARY GRADES; THE EXTENSION OF THE HIGH-SCHOOL COURSE

In a number of American cities modern-language instruction, mainly German, has already been introduced in the primary¹ grades of the public schools, and the propriety and value of such instruction have been warmly debated in the newspapers and in local educational circles. On the one hand, it is urged that in any community where Germans preponderate or constitute even a large minority of the taxpayers, they have a right to demand that the German language be taught in the public schools. The reply is made that the primary schools of the United States have an important function to perform in preparing children for life and citizenship in an English-speaking country, and that this mission will best be performed if the English language and no other is made the subject and the medium of instruction. To this it is rejoined that the learning of a foreign language in childhood need not prejudice the learning of English or any other important subject, that the rudiments are quickly and easily acquired, and that the early beginning is in accordance with sound pedagogical principles. This line of assertion, in turn, is met with the reply that the primary schools have all they can do in teaching the subjects that are of obvious

¹ We use the word "primary" to denote in a general way all grades below the high school.

and undeniable use to everybody, and that the smattering of a foreign language which they can impart serves no educational purpose and is of no practical value in life.

When the issue is thus stated, one sees at once that there is a measure of soundness in all these contentions. The committee feels that it would be futile to attempt here an answer to the question whether it is or is not desirable, in the abstract, that a foreign language be taught in the primary grades of our public schools. The question in its politico-social bearings is a very large one, but it is a question which every community must and will decide for itself in view of local conditions, and the wisdom of its decision must abide the test of experience. We believe, however, that experience is already sufficient to enable us to formulate certain general principles which should always be kept in view in the practical management of the matter under consideration.

In the first place, if a foreign language is taken up in the primary grades, it should always be as an optional study. This point seems to require no argument. The value of the study is at best so uncertain, so dependent upon circumstances of one kind or another, that the work should not be made obligatory for anyone.

In the second place, it is not worth while, as a rule, that the study of a foreign language be taken up in the primary grades, unless the beginner has at least a prospect and an intention of going on thru the secondary school. The reason for this opinion is that what can be acquired of a foreign language in the primary grades, even with the best of teaching, and under the most favorable conditions, is good for nothing except as a foundation. For while it is true that children learn quickly and easily the rudiments of "conversation" in a foreign tongue, it is also true that they forget them no less quickly and easily. The children of parents who speak German at home, and expect to speak it more or less all their lives, may be taught in the primary school to use the language a little more correctly; but if they leave school at the age of twelve or fourteen, they inevitably drop back into the speech habits of those with whom they associate, and their school training thus becomes, so far as the German language is concerned, a reminiscence of time wasted. The children of parents who speak English at home may get a smattering of German at school; but if they leave school at the age of twelve or fourteen, they soon forget all they have learned.

In the third place, if a foreign language is taught in the primary grades, it should be by teachers who handle the language easily and idiomatically. Classes should be as small as possible, and there should be at least one exercise on every school day. Infrequent lessons in large classes amount to nothing. It is important that the teacher know his pupils intimately and be able to adapt his instruction to their individual needs. The general aim should be to familiarize the learner with the

vocabulary and phraseology of the spoken language, and to teach him to express himself readily and correctly in easy sentences. The free use of *Realien* is to be recommended.

In what has just been said we have had in view the usual arrangement of work, in accordance with which the secondary or high school is supposed to begin with the ninth grade (the average pupil being then about fourteen years old) and to extend over a period of four years. Grades below the ninth we have classed as primary. But while this is still the typical arrangement for the country at large, schoolmen have here and there lengthened the high school by extending it downward; in other words, by making provision that some of the solid disciplinary studies of the secondary period shall begin in the seventh or eighth grade. There appears to be strong argument in favor of this plan. It is urged by thoughtful schoolmen that our American high school has become congested; that the increased requirements of the colleges and the pressing demands of new subjects for "recognition" have given to the secondary school more work than it can do thoroly in the traditional allotment of time. When, as sometimes happens, the colleges are blamed for this state of affairs, and it is suggested that they reduce their requirements for admission, they are able to reply with much force that present requirements, even where they are highest, are none too high, unless we are willing to fall far below the standard of the Old World. The average graduate of an American high school is of about the same age as the average graduate of a German gymnasium, but the latter is farther along in his studies and better prepared for higher work. We have, therefore, to consider the problem of strengthening the preparatory course, while recognizing that the ordinary four-year curriculum can bear no further burdens, and should, if anything, be simplified. Of this problem the obvious solution is to begin the proper work of the high school at an earlier date. Instead of dividing our educational years into eight primary, four secondary, and seven or eight higher, we should divide them into six primary, six secondary, and six higher.

It is probable, then, that the six-year high-school course will meet with increasing favor, for the idea is a good one. At the same time we can not expect that the now usual organization of school work will be changed immediately or even rapidly, and for this reason the model courses to be described below have been drawn up primarily with reference to existing conditions. Our principal object in touching here upon the subject of the six-year secondary curriculum was to prepare the way for an expression of the opinion that, where such extended courses are provided, a modern language can be very advantageously begun in the seventh grade.

Whether Latin or a modern language should come first in a well-ordered course of study is a question upon which teachers differ. It is

one of the questions upon which, in the existing state of psychological and pedagogical science, it is just as well not to dogmatize. In fixing the order of studies in any school course, practical considerations of one kind or another will often outweigh general argument. Probably the sanest view of the matter is that it does not make very much difference whether Latin or a modern language precedes, if only the elementary instruction in either case be rightly adapted to the learner's age and mental condition. It is often urged that the discipline afforded by the study of Latin makes the subsequent learning of a modern language easier. This is true, but the converse is no less true. In beginning the serious study of any foreign language there are certain mental habits to be formed, certain faculties to be called into play and exercised. The pupil must learn how to study. He must become familiar with strange forms and with their equivalent in his own tongue. He must learn what idiom means and how to translate; must learn to observe, compare, and think. For the purpose of this elementary discipline one language is as good as another, if only the teaching be intelligent; and the discipline of the first linguistic study makes the second easier. In general, it is safe to assert that the average boy or girl of twelve will take more kindly to French or German than to Latin. The modern language is easier and more interesting. It seems more real and practical. Progress is more rapid. The value of the Latin has to be taken on trust, that of the modern language is more obvious to the juvenile mind. For the children of twelve the Latin grammar is a very severe study. It means usually for many months little more than a loading of the memory with paradigms, a blind investment of labor for the sake of a mysterious future profit which the learner cannot comprehend. The elementary reading matter is usually dull stuff, devised to illustrate grammar. Up thru Cæsar's *Commentaries* there is almost nothing to touch the feeling, to feed the imagination, to suggest a real connection with the pupil's own life. It is all a grind; in its time and place, to be sure, a very useful grind. We believe in it heartily. But the question is whether for children of twelve it is not best to break the force of the initial impact with Latin by using a modern language as a buffer.

It may also be remarked, finally, that one who wishes to acquire a modern language thoroly will always do well to begin in childhood. The later period of youth is distinctly a bad time to begin. In childhood the organs of speech are still in a plastic condition. Good habits are easily formed; bad habits more easily corrected. The mind acts more naïvely, and the memory is tenacious of whatever interests. Forms of expression are readily mastered as simple facts. Later in life, in proportion as the mind grows stronger, it also grows more rigid. The habit of analyzing and reasoning interferes more or less with the natural receptivity of the child. The fixation of speech habits in the mother-tongue

makes it increasingly difficult to acquire even a moderately good pronunciation, and perfection is usually out of the question.

SECTION VI. PROPOSAL OF THREE NATIONAL GRADES OF PREPARATORY INSTRUCTION IN THE MODERN LANGUAGES

Thus far this report has not dealt specifically with requirements for admission to college. In accordance with the idea embodied in the resolution referred to in Section I, we have approached our subject from the point of view of the secondary schools. We have endeavored to state and explain the principles which should be kept in view in order to render our school work in French and German as valuable as possible to the learner. We have recognized that the secondary school does not exist solely, or even mainly, for the sake of its preparatory function; and what we have said would be in the main true, and we hope valuable, even if there were no colleges. Nevertheless the preparatory function of the secondary school is obviously of very great importance. In practice secondary courses are shaped quite largely with reference to college requirements. The school naturally looks to the college as a regulative influence. It turns to the college catalog, learns what must be done to prepare its pupils for admission, and concludes, not unnaturally, that this is about what ought to be done from an educational point of view. In the absence of any central control of education in the United States his regulative influence of the college is the most potent agency at our command for creating and maintaining a high standard of secondary teaching. We come, then, to the subject of secondary instruction as related to college requirements.

For the purpose of simplifying the relation between the colleges and the secondary schools, and for the purpose of securing greater efficiency and greater uniformity in the work of the schools, it is hereby proposed that there be recognized, for the country at large, three grades of preparatory instruction in French and German, to be known as the elementary, the intermediate, and the advanced, and that the colleges be invited to adopt the practice of stating their requirements in terms of the national grades.

Explanatory.—The proposed three grades are designed to correspond normally to courses of two, three, and four years, respectively, the work being supposed to begin in the first year of a four-year high-school course, and to proceed at the uniform rate of four recitations a week. The elementary course is designed to furnish the minimum of preparation required by a number of colleges in addition to the Latin and Greek of the classical preparatory course. The intermediate course is designed to furnish the preparation required by many colleges which permit the substitution of a modern language for Greek. The advanced course is

designed to furnish the highest grade of preparation of which the secondary school will ordinarily be capable in a four-year course.

With respect to the time required, in years and in hours per week, for the satisfactory completion of the work to be outlined below, it should be said that the committee has no thought of imposing upon the schools an inflexible program. Teachers will continue to make their programs in accordance with their own judgment and convenience. The rapidity with which the proposed work can be done will, of course, vary greatly in different schools, with the age and aptitude of pupils, the size of classes, the efficiency of teaching, and according as the beginner of French or German has or has not studied Latin. It makes no small difference whether the modern language is begun in the first year or in the third year of the high-school course. In attempting to draw up model courses, however, the committee obviously had to make some definite assumption with regard to the time of beginning and the number of recitations per week. It was also necessary to provide for the case of the work beginning in the first year, since many of our best schools already have four-year courses in German or French, or both. It is clearly desirable that such courses be made as good as possible, and that they have a recognized place and value in our general scheme of requirements for admission to college.

With regard to the four recitations per week, let it be observed that that number has been made the basis of our calculations, not because the committee prefers it to five, or wishes to recommend it to the schools instead of five, but because it is believed to be the smallest number that will permit the proper completion of the work proposed, if the work begins in the first year. When a modern language is begun in the third year of the high school, it may be possible to complete the intermediate course in two years at the rate of five recitations a week, and the elementary course in proportionally less time. Where French is taken up in the last year of the classical preparatory course, it may be possible sometimes to meet the elementary requirement in one year at the rate of five recitations a week. But this will almost never be possible in the case of German, and in general the committee does not recommend one-year courses. The attempt to meet the elementary requirement in one year will result usually in a cramming process, with neglect of that thoro drill upon the rudiments which is necessary for a good foundation.

In drawing up model courses the committee has had in view the needs and the conditions of the United States at large.¹ The work of the

¹In the spring of 1896 representatives of Harvard, Yale, Princeton, Columbia, Cornell, and the University of Pennsylvania met in New York and, in conference with representatives of a number of prominent eastern preparatory schools, agreed upon a scheme of uniform requirements which has since been accepted by the institutions concerned. The modern-language conference framed an elementary and an advanced requirement in French and in German. The elementary requirement of the New York conference is substantially the same as that proposed by this committee, and its advanced requirement is nearly identical with

subcommittee charged with the matter was first submitted for criticism and suggestions to some two hundred secondary teachers of known ability and experience. It was then carefully revised in the light of the information and opinions gathered, and finally ran the gauntlet of thoro discussion in the Committee of Twelve. It is believed to represent the best intelligence of the country; to set a standard which is high, but not too high, and to be thruout entirely practicable. Teachers who do not find their own ideas perfectly expressed by the scheme will please remember that the committee had to find its way among a multitude of counselors.

RECOMMENDED COURSES OF STUDY

SECTION VII. THE ELEMENTARY COURSE IN GERMAN

A. THE AIM OF THE INSTRUCTION

At the end of the elementary course in German the pupil should be able to read at sight, and to translate, if called upon, by way of proving his ability to read, a passage of very easy dialog or narrative prose, help being given upon unusual words and constructions, to put into German short English sentences taken from the language of everyday life or based upon the text given for translation, and to answer questions upon the rudiments of the grammar, as defined below.

B. THE WORK TO BE DONE

During the first year the work should comprise: (1) careful drill upon pronunciation; (2) the memorizing and frequent repetition of easy colloquial sentences; (3) drill upon the rudiments of grammar, that is, upon the inflection of the articles, of such nouns as belong to the language of everyday life, of adjectives, pronouns, weak verbs, and the more usual strong verbs; also upon the use of the more common prepositions, the simpler uses of the modal auxiliaries, and the elementary rules of syntax and word order; (4) abundant easy exercises designed not only to fix in mind the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; (5) the reading of from 75 to 100 pages of graduated texts from a reader, with constant practice in translating into German easy variations upon sentences selected from the reading lesson (the teacher giving the English), and in the reproduction from memory of sentences previously read.

During the second year the work should comprise: (1) the reading of from 150 to 200 pages of literature in the form of easy stories and plays; (2) accompanying practice, as before, in the translation into German of easy variations upon the matter read, and also in the off-hand reproduction, sometimes orally and sometimes in writing, of the substance of short and easy selected passages; (3) continued drill upon the rudiments of the grammar, directed to the ends of enabling the pupil, first, to use his knowledge with facility in the formation of sentences, and, secondly, to state his knowledge correctly in the technical language of grammar.

C. SUGGESTIONS TO THE TEACHER

The following paragraphs are submitted in the interest of good teaching, and not in the interest of the most expeditious preparation for college. It is well known that a our intermediate requirement. Slight differences appear in phraseology, in estimates of time required, and in the number of pages suggested for reading. But these differences are insignificant. It is believed, therefore, that the six prominent institutions which have already made so good a beginning in the unification of entrance requirements will have no difficulty in adapting their statements to the scheme which is here proposed for the country at large,

capable boy or girl can be crammed for a college examination in any subject in much less time than a proper training in the subject would require. Here, however, we are concerned with the proper training. The college-entrance examination is admittedly an imperfect test of attainment in a modern language. Where candidates are numerous and the time limited, the examination is necessarily in writing; and then the only available test of the ability to read is the ability to translate, while pronunciation and readiness of speech are not tested at all. It is evident, then, that a good symmetrical training in the secondary school must keep in view more things than are likely to be "required" of the candidate at his examination for admission to college. In what follows we shall take up the more important points that are involved in the teaching of beginners, and make some practical suggestions—suggestions that are by no means intended to prescribe a routine, but rather to state and explain guiding principles.

1. *Pronunciation.*—It is hardly necessary to say that the first matter of importance for the beginner is the learning of a good pronunciation. Drill upon the subject should be kept up steadily and inexorably until right habits are firmly fixed; because wrong habits formed at the outset are very persistent and very difficult to correct. In attempting to imitate his teacher's utterance of the strange German sounds the learner will at first neither hear nor reproduce correctly, but will utter rough approximations of his own. It is necessary to train both his ear and his vocal organs. In doing this most teachers rely only upon oft-repeated imitations of their own pronunciation; and this is the best reliance, always supposing that the model itself be good. What usually happens, however, is that teachers cease or slacken their drill too soon. They find it dull business. After correcting some faulty utterance a score or two of times, they conclude that the result obtained will "do," that it is the best obtainable, that practice will make perfect—in the future. But the learner, being no longer regularly brought to book for his faults, perpetuates them, and makes no further progress except to pronounce badly with greater facility. In this way is acquired the slovenly pronunciation with which too many leave school.

The opinion is sometimes expressed that it is not worth while to take great pains in the teaching of pronunciation, since perfection is out of the question. The argument is that American youths will not learn in school, however they may be taught, to pronounce German as Germans pronounce it; and that, since they will speak badly anyway, the question of more or less cannot greatly matter. But this is not the right attitude. For, altho one who is not a German will very rarely learn after childhood to use the organs of speech precisely as Germans use them, so that his pronunciation will ring absolutely true, still any boy or girl of average aptitude may, by careful attention to the subject, acquire a pronunciation so good that it will be pleasing rather than displeasing to a cultivated German ear; just as, in the case of Germans learning English, that which is called the foreign "accent" may be reduced to such minute proportions that it does not offend, tho it is noticeable. Now, this is a result worth working for; but it can only be obtained when the teacher is interested in pronunciation and well informed with regard to it. And right here comes in the great value of a knowledge of phonetics. Without such knowledge the teacher's only resource is the imitation of himself as model; his own personal habits of utterance become the standard of the class. But his habits may not be the best. If an American, he may have received a faulty training; if a German, he may have dialectic peculiarities which should not be taught to a class. One who knows just how the German sounds are produced, and how they differ from the English sounds with which they are most apt to be confounded, has a great advantage in teaching pronunciation. If he hears a faulty utterance, he will know what is the matter and can correct it in the most effective way. If he knows something of German dialects, of provincial or local peculiarities of pronunciation, of the nature and claims of the so-called standard pronunciation, he will know what "correctness" means and will be able to teach more intelligently.

And, what is most important of all, for one who has a scientific interest in pronunciation the class-room drill upon the subject will not be a dull, mechanical routine, but a highly interesting employment. He will himself learn much incidentally, and will make his teaching of pronunciation useful to his pupils, not only for German, but also for English.

It is, therefore, very much to be desired that teachers of German in the secondary schools be qualified to deal scientifically with the subject of pronunciation. For this purpose it is not at all necessary that they be accomplished phoneticians. A very rudimentary knowledge of general phonetics will suffice. Of greater importance is it to have at hand, and to have carefully studied, a good treatment of the special problems of German-English phonetics.¹

2. *The memorizing of colloquial sentences.*—If there is any point upon which progressive teachers of living languages the world over have lately been coming to an agreement, it is that, in any course of study making the slightest pretension to thoroughness, the proper starting-point in teaching is the vocabulary and phraseology of the language as represented in its everyday forms of expression. It is, of course, possible to learn to read a language with some facility and still not be able to utter a sentence in it intelligibly or to understand a sentence uttered by another; in short, without acquiring any feeling for the language in its characteristic modes of expression. Scholars and men of science who find it necessary in their work to read a number of foreign languages can very quickly, by the aid of grammar, dictionary, and translation, reach a point at which they can "make out the sense" or "get the drift" of an article or a pamphlet. But this is not learning the language any more than "picking up" a few tunes on the piano is learning music. Such reading, tho better than nothing and useful for certain purposes, is unsatisfactory. In the field of *belles-lettres*, where so much depends upon style, upon niceties of expression, and the subtle association of ideas, it is extremely unsatisfactory. The school, in dealing with languages so important as German and French, should aim at something better. It should aim to be thoro; to begin in the best way, and lay a good foundation.

For literary appreciation—that is, for reading of the most profitable kind—one needs before all things a sensitive feeling for the language. One needs the sense of being at home in it. In teaching, this principle should be recognized from the outset. The learner's knowledge is to be made second nature. His facilities and organs must be taught to respond instantly and naturally to the foreign symbols, whether they are seen or heard. Idea and form of expression must become so intimately associated that the one suggests the other without any intervening process of ratiocination. To accomplish this, there is no kind of drill so good as the memorizing and frequent repetition of easy colloquial sentences. Such sentences can be given out and learned without any attempt at grammatical analysis and quite in advance of the pupil's grammatical knowledge. To know the meaning of *es thut mir leid*, and to be able to handle the sentence appropriately, it is not at all necessary that one be able to parse a single one of the words. It is to be borne in mind that psychologically the unit of speech is the sentence or the phrase, and not the individual vocable. Thoughtful teachers sometimes object to this form of drill on the ground that it is mere memory work, that it does not teach the pupil to think or to

¹ Such a treatment can be found in Hempl's *German Orthography and Phonology* (Boston, 1897). The second "book" of Professor Hempl's work gives, in chap. 1, a sufficient introduction to general phonetics, with bibliography on p. 61; then, in chap. 2, a scientific description of German speech sounds. Chap. 3 discusses such topics as "A Standard of Pronunciation," "Stage Pronunciation," "The Best German," "The Difference between German and English Pronunciation," and, very fully, "The Values of the Letters." Bibliography, on p. 107. From the works there mentioned we select, as likely to be most useful to the teacher (aside from Professor Hempl's own book): Grandgent's *German and English Sounds* (Boston, 1892); Brandt's *German Grammar* (second part) (Boston, 1888); Vietor's *German Pronunciation*, 4th ed., 1890 (Lemcke & Büchner 812 Broadway, New York, American agents); also Vietor's German essays, *Die Aussprache des Schriftdeutschen*, 1890, and *Wie ist die Aussprache des Deutschen zu lehren?* 1893. It is hardly necessary to say that the most widely used school grammars deal very briefly and superficially with the subject of pronunciation, and are an insufficient reliance, even when free from positive error.

reason. This, however, is not a valid objection. Such drill does much more than to load the memory. It develops aptitude by making psychological reactions instantaneous; in short, by creating *Sprachgefühl*. Its value has some analogy to that of the finger exercises of the incipient pianist.

It is obviously important that what is given out to be learned in this way should consist of nothing but natural, oft-recurring forms of expression. The pupil is to learn how Germans actually say things, and not how they might possibly say something which no one would ever have occasion to say outside the class-room. The ideal condition is, of course, that the teacher have such a command of colloquial idiom that he will be able to furnish the necessary materials from the resources of his own knowledge. It will, then, be best that the pupil's repetitions be elicited by questions addressed to him in German; in other words, that the drill take the form of short dialogs without the use of English. But, as we have already intimated, the teacher who does not command the language should not attempt this, but follow a book or note down suitable sentences from his reading of realistic stories and plays. Such sentences may then be given out to be learned and repeated frequently, the teacher giving the thought in English.¹

This is, perhaps, an appropriate place to say a word upon the subject of memorizing poetry, a kind of drill which is highly thought of and largely practiced by many teachers. The argument in its favor generally takes some such form as this: Boys and girls are apt to memorize easily, and they must memorize something; then why not have them memorize gems of poetry and great thoughts of great writers rather than the banalities of ordinary discourse? But this argument is fallacious. The object of the drill in colloquial German is, as we have already remarked, not to load the memory with things supposed to be highly valuable in themselves, but to create an instinctive feeling for the language in its usual and natural modes of expression. Now poetry, as the language of emotion, is a more or less artificial — often a highly artificial — form of expression, and it is better that the natural become lodged in the mind first. The beginner who has learned to recite "Sah ein Knab' ein Röslein stehn, Röslein auf der Heiden," is hardly in a better, but rather in a worse, position for learning how a German would ordinarily express that idea. It may further be remarked that in simply hearing recitations of poetry in the class-room the teacher can be of little use except to see that his pupils have done their task, which is, to make the best of it, one of his lowest functions; to correct mistakes of pronunciation, and to give points in elocution, if his talent runs in that direction. It is an easy business for him, but it is apt to involve a great waste of valuable time for all except the reciter. Finally, it is not to be forgotten that this kind of exercise, if it is felt as an irksome task, may easily create a positive distaste, instead of a liking, for the gems of poetry. We must remember Lord Byron's pathetic exclamation:

Then farewell, Horace, whom I hated so.

To sum up, we would not be understood as condemning altogether the exercise of memorizing poetry, but we have not thought it of sufficient importance to deserve a place in the scheme of work outlined above. At any rate, it should not be made much of in the early stages. The poems given out for committing to memory should be few and short, and selected with reference to their simplicity and naturalness of expression. The teacher who omits the exercise altogether during the first year will make no great

¹ For reasons sufficiently obvious the committee does not undertake to recommend particular American text-books for class use. There are a number of publications from which material more or less suitable can be culled. The test in choosing is whether a sentence represents (1) a natural and (2) a usual or oft-recurring form of expression. A scientific manual of spoken German, on the general lines perhaps of Sweet's *Elementarbuch des gesprochenen Englisch*, is a desideratum. Worthy of recommendation for its thorough trustworthiness in respect of idiom, and equally good for German and French, is the German edition of Storm's *Dialogues français*, i. e., *Französische Sprechübungen* (Leipzig, 1888). For an excellent theoretical discussion of colloquial German, containing many useful hints to the teacher, we call attention to Wunderlich's *Unsere Umgangssprache* (Weimar, 1894).

mistake. The recitation of well-chosen dialogs, with the parts assigned, is a better exercise, and, we believe, is usually found more interesting to learners.

3. *Grammar*.—It is assumed that simple exercises in colloquial German will begin with the very first lesson and take a portion of each recitation period, even when the pupil is learning the alphabet and becoming familiar with the values of the letters. It goes without saying that the sentences learned should occasionally be written down, as well as often repeated orally. Practice in writing German from dictation is helpful in learning to spell, and should be kept up for some time. It may, however, be discontinued earlier than in case of French, because German spelling is much easier to learn than French.

Whether the script letters should be learned at the same time with the print letters and regularly used in all written work is a question upon which opinions differ. On the one hand, it is urged that the script letters are not at all difficult to master, and that the use of them facilitates learning to spell; that such spellings as *musz, müssen, Herz, sitzen*, and others come more easily in the German than in the Roman script. It is also urged that, as Germans use the script in their ordinary writing, those who are studying the language should learn to use it. The opposing arguments are that there is nothing educational or practically useful about learning to write the German script; that for Americans it is quite sufficient to be able to read it, in case they should some time get a letter written in it; that boys and girls of high-school age have usually formed their hand in English, and that, unless great pains be taken with them at the start—that is, unless the teacher be both able and willing to teach penmanship for its own sake—they are almost sure to learn to write the script in an ugly un-German hand, like nothing ever met with outside the class-room. From this it is clear that there is something to be said upon both sides. Upon the whole, the committee is of the opinion that the use of the German script in the schools should not be regarded as a matter of great importance, and should never be required at a college examination. Teachers who write it well, and are willing to take the time to teach it well, may very properly insist upon it. Others will be upon safe ground if they permit the use of the Roman letters in all written work. In that case, however, they should sooner or later give their pupils some practice in reading German handwriting.

It is assumed that learners who are of high-school age will take up the study of grammar after a few preliminary lessons. But for several weeks the grammar lessons should be short and easy, so as to allow an abundance of time each day for colloquial exercises and drill upon pronunciation. As the course proceeds, the study of grammar and the doing of exercises directly related to the study of grammar may properly be allowed to absorb an increasing portion of the time, but the colloquial practice should be kept up. In the teaching of grammar the most important principle to be kept in view is that the grammar is there for the sake of the language, and not the language for the sake of the grammar. The recitation of paradigms, rules, and exceptions is always in danger of degenerating into a facile routine, in which there is but little profit. The important thing is not that the learner should acquire facility in telling off paradigms, quoting statements, and explaining principles according to the book, but that he should acquire facility in understanding and using the language. The maxim should be: Little theory and much application. It is of small use to be able to state correctly the principle of adjective declension, so long as the pupil, in attempting to apply the principle in a simple case, is obliged to stop and think, to recall his grammar, and perhaps to guess after all. The right forms must be so bred into the blood that they come naturally from tongue and pen. This, of course, requires an endless amount of repetition, which may at times become tedious. But the time spent upon this elementary drill is well spent and tells for good throughout the course. Teachers should not be in too great haste to get to reading good literature.

The first difficulty of practical importance in teaching German grammar relates to the gender and declension of nouns. If the attempt is made to master the gender and declension of every noun that is met with, either progress will be very slow (as in case of German children learning the mother-tongue), or the learner's memory soon becomes overtaxed. Trying to remember everything, he soon ceases to remember anything with absolute confidence. The best way to deal with this difficulty is to concentrate attention from the start upon those nouns that belong to the language of everyday life—the names of familiar objects, relationships, and ideas—to make sure of these and let the others go. A list of such nouns can be made out which need not contain more than, say, three hundred words. The pupil who at the end of a two-years' course has really learned that number of nouns, so that the right gender and the right plural come to him instantly, has done quite enough. More should not be expected by the college examiner, so far as concerns those nouns the gender and declension of which cannot be determined by inspection. It is, of course, assumed that the candidate will know about nouns in *-chen*, *-lein*, *-ei*, *-heit*, *-keit*, *-in*, *-schaft*, *-ung*. Whether he knows any other rules for gender is not very important.

After the inflection of the noun the other grammatical topics that require the most attention are the inflection of the adjective, the forms of the strong verbs and modal auxiliaries, the use of prepositions, and the subject of word-order. In dealing with these and the minor difficulties of German grammar it is customary to rely, first, upon grammatical exercises—that is, the translation from German into English and from English into German of collections of sentences devised or selected for the express purpose of illustrating some grammatical point; and, secondly, upon drill connected with the German reading lesson. Both these resources are good, if properly handled, and neither should be neglected. To do its proper work the grammatical exercise should not be simply worked thru once and then dismissed, but reviewed and repeated until the right forms come instantly from the tongue and pen. From this it follows that the sentence of the grammatical exercise, no less than those learned in colloquial practice, should represent natural forms of expression—things that Germans say or might say under easily supposable conditions. It used to be thought—and perhaps some teachers and text-book makers still think—that anything grammatical will do for teaching grammar. And so, perhaps, it will; but it is possible to teach the grammar at the expense of the language, and the language is what we are after. To ask a learner to upset into alleged German such sentences as: "The pupils' coats and shoes are in the maids' hands," or, "I give warm clothes and red apples to poor little children," is, to say the least, inexpedient. Instead of a help, it is a hindrance to the acquisition of a sensitive feeling for the language. Rather than exercise his wits upon the translation of such English into such German it were much better that the learner should do no English-German translation whatever, but simply read German and learn the grammar by observation and appropriate drill. Perceiving rightly that the translation of bad exercises is a waste of time and positively harmful, some teachers have been led to the position that all English-German translation is out of place in a beginner's course. They argue that one should not be expected to translate into a language until he knows something about it, until he has a certain working capital in the way of a vocabulary, phraseology and linguistic feeling; that so long as he must look up his words in the vocabulary and painfully and faultily piece them together, according to his understanding of the grammar, it is better for him to occupy himself with German produced by those who know the language. This reasoning is not altogether unsound, but properly applied it does not lead to the rejection of all English-German translation in the early stages of study. On the contrary, such translation is itself highly useful in acquiring that larger working capital which is desired. All that is necessary is to avoid difficult or independent translation. Thruout the elementary course the English-German translation should consist

of little else than easy variations upon a German text already studied. The German *Vorlage* should furnish or suggest substantially all that the learner needs to know, previous acquirements being, of course, taken into consideration. Here the maxim should be: A great deal of the easy rather than a little of the difficult.

We come now to the subject of drilling upon the reading lesson. There are various kinds of questions that can be asked about a text, but three types are prominent in the practice of teachers. In the first type the questions call for the recitation of paradigms and rules and the explanation of grammatical principles. In the second type the questions call for the translation into German of English sentences based upon the text. In the third the object is to draw the pupil out and induce him to talk about what is said in the text. To illustrate, supposing the text in hand to be, *Der See macht eine Bucht ins Land*:

1. Decline *der See*. What is the meaning of *die See*? Decline *die See*. Give the principal parts of *macht*. Inflect *macht* in the present indicative active. Give a synopsis of its tense in the indicative, first person singular. Why is the accusative used after *in*? Decline *Land*. What is the difference between *Lande* and *Länder*?

2. How would you say in German: The lake is quiet. The sea is quiet. My home is on the lake. I see a ship on the sea. There are many lakes in Switzerland? Give the German for: I made. I have made. I shall make. What are you making? Paper is now made of wood. Would it do to say *eine Bucht im Lande*? How would you say: He is coming to land. I am going into the country. I live in the country. That is the case in all lands except the Netherlands?

3. *Was macht der See? Welcher See ist gemeint? Wo befindet sich dieser See? Von welchem Lande ist hier die Rede? Waren Sie je in der Schweiz? Was für eine Regierung hat die Schweiz?*

Now, the best teaching will make some use of all these types of drill questions, but more of the second than of the first or third. The objection to an exclusive, or even a predominant, use of the first is that it teaches the pupil to "rattle off" paradigms and rules, but not to understand or to use the language. Instead of learning to think in German, as the phrase is, he learns to think grammar in the terms of his text-book. Every college examiner is acquainted with the youth who will write *er hat gekommen* and then, on demand, give correctly the rule for the use of the auxiliaries of tense. What is needed in his case is not more practice in repeating the rule, but more practice in writing and saying *er ist gekommen*. The objection to an exclusive use of Type 3 is that it does not specifically teach grammar at all. In Types 1 and 2 the questions may, of course, be put in German instead of English. It is to be observed, however, that the German grammatical terms are rather difficult to learn and do not come under the head of "every-day forms of expression." The principal value of grammatical drill conducted in German is to teach the learner to handle the sentence. So far as the vocabulary is concerned, he might better be learning something else.

4. *Reading matter*.—In outlining the work of the elementary course we have recommended that, aside from the German-English exercises of the grammar, the reading matter of the first year consist of graduated texts from a reader. This is the usual practice, and it certainly has some argument in its favor. The advantage of a reader is that it offers variety, introduces the learner to different styles, and leads him gradually from that which is very easy to that which is more difficult. Some teachers, however, prefer to make no use of a reader, but to pass directly from the grammar to complete stories having some literary value. They urge that such reading is more interesting and profitable than the disconnected texts usually found in readers. Others, while approving the use of a reader, will prefer to drop it earlier than our scheme proposes, and to read at least one complete story during the first year. Questions of this kind are not very important; and there are no general principles on which to decide them. Teachers must

decide according to the character of their classes. Fortunately there is now no lack of suitable material. We have several very good readers and a large number of *Märchen*, *Geschichten*, *Erzählungen*, and *Novellen*, published both separately and in collections, and all annotated for beginners.

In choosing from the mass of literature available for the second year the aim should be, of course, to find that which is interesting to the young, wholesome, well written, and not too difficult. It is natural to begin with the fairy stories, or *Märchen*, in which Germany is so prolific, but pupils of high-school grade should not be kept too long on a diet of *Märchen*. If, at the end of the elementary course, the pupil is to be able to read easy narrative prose at sight, it is necessary that he have practice in reading different styles. Lively, realistic narrative, with plenty of dialog, is to be preferred. The German *Märchen* is apt to appear childish to American boys and girls. On the other hand, teachers often complain that most of the tales furnished by conspiring editors and publishers are more or less mawkish love tales, and they sigh for vigorous stories of adventure, with the grand passion left out or made little of. This is a demand which future editors may well keep in view. Meanwhile we must remember that the Germans are a more sentimental people than the Americans, and that one of the objects for which we study German in school is to learn what the Germans are like.

Stories suitable for the elementary course can be selected from the following list:^{*} Andersen's *Märchen* and *Bilderbuch ohne Bilder*; Arnold's *Fritz auf Ferien*; Baumbach's *Die Nonna* and *Der Schwiegersohn*; Gerstäcker's *Germelshausen*; Heyse's *L'Arrabbiata*, *Das Mädchen von Treppi*, and *Anfang und Ende*; Hillern's *Höher als die Kirche*; Jensen's *Die braune Erica*; Leander's *Träumereien*, and *Kleine Geschichten*; Seidel's *Märchen*; Stökl's *Unter dem Christbaum*; Storm's *Immensee* and *Geschichten aus der Tonne*; Zschokke's *Der zerbrochene Krug*.

Good plays adapted to the elementary course are much harder to find than good stories. Five-act plays are too long. They require more time than it is advisable to devote to any one text. Among shorter plays the best available are perhaps Benedix' *Der Prozess*, *Der Weiberfeind*, and *Günstige Vorzeichen*; Elz' *Er ist nicht eifersüchtig*; Wichert's *An der Majorsecke*; Wilhelmi's *Einer musz heiraten*. It is recommended, however, that not more than one of these plays be read. The narrative style should predominate. A good selection of reading matter for the second year would be Andersen's *Märchen*, or *Bilderbuch*, or Leander's *Träumereien*, to the extent of, say, forty pages. After that such a story as *Das kalte Herz* or *Der zerbrochene Krug*; then *Höher als die Kirche* or *Immensee*; next a good story by Heyse, Baumbach, or Seidel; lastly *Der Prozess*.

A minor question which sometimes exercises the mind of the teacher is the question of the special vocabulary *versus* the dictionary. The obvious advantage of the special vocabulary is that it is very much more convenient for the learner. A well-known schoolman, in writing to the committee upon this subject, sums up his views in the proposition that "dictionaries are a nuisance." Nor is it easy to find any valid pedagogical objection to the use of a properly prepared special vocabulary. The objection most often urged is that in using a special vocabulary the scholar does not learn, nor try to learn, what the word really means in and of itself, but only what it means in the context where he has found it. It is urged, therefore, that before he can become independent, and acquire scholarly habits of study, he must emancipate himself from the special vocabulary and learn to use the dictionary. There is some force in this argument, but not much, for what the learner invariably does in using the dictionary is to pick out, from the various meanings given, the particular one which suits his occasion. To the others he pays no attention. When he comes across the word in another sense, he looks

^{*}In all the reading lists the order is alphabetical. It expresses no opinion with regard to the merit of the texts as compared with one another.

it up again. It is thus a saving of time if he have the right meaning, unincumbered by the others, given him in a special vocabulary. Really the whole question is mainly one of saving time. If, in getting his lesson, the learner could have at his elbow someone who would simply tell him the meaning of the word, that would be better still, if he would but remember what he was told. But there is undoubtedly some truth in the principle that what is acquired with difficulty, that is, with exertion and exercise of judgment, is the more likely to be remembered. Meanings that come easily in footnotes are apt to go no less easily. The whole question is one upon which no fixed rule can be laid down. There is no serious objection to the use of special vocabularies thruout the elementary course, provided the right texts are available in editions provided with vocabularies, but the choice of reading matter should not turn primarily upon this consideration. It is best to provide a course of reading, with variety, interest, and progression, even if, toward the end, the dictionary has to be used.

5. *Translation into English; sight reading.*—In the majority of schools it would appear that, after the first few months, the study of German consists principally in the translation of German literature into English. Translation is the exercise which is felt by both teacher and pupil to be the most important, and it is the one, accordingly, which is most insisted upon. It is also the exercise most easily handled. To sit and hold a book while the members of the class translate, one after the other, into class-room English, to correct their more serious blunders, and help them to "get the sense," requires no great amount of preparation, no great expenditure of energy or ingenuity. But while it has its dangers, the profitableness of translation cannot be successfully attacked. Whatever may be true of very young children, one who already knows one language will learn another most "naturally," most expeditiously, and most thoroly by means of comparison with his mother-tongue; and this comparison, as was pointed out in a preceding section, is an important instrument of discipline and culture. Moreover, translation is the most effective and the most readily available means of determining whether the sense of a passage is exactly understood. It is the best detective of mental haziness, half-knowledge, and self-deception. At the same time it should not be forgotten that the principal object of study is not to learn to translate, but to learn to read without translating.

How to deal with translation so as to make neither too much or too little of it, so as to get the good and escape the evil of it, is not a simple problem for the teacher. It is easy to say that good translation should always be insisted on, and that bad English should never be allowed to go uncorrected. As a counsel of perfection, this is no doubt good. The trouble is, however, that really good translation of real literature is an art requiring literary skill. There must be time for the mental balancing of alternatives, the testing of synonyms, etc. No one can do it off-hand. To expect schoolboys or college students to do it in the ordinary routine of class work is to expect impossibilities. On the other hand, slovenly, incorrect, and unidiomatic translation is worse than a waste of time. The young person who gets into the habit of murdering his mother-tongue in cold blood, under the pretense of learning a foreign language, does himself more harm than good. What, then, is to be done? The practical answer would seem to be this: Between the extremes of atrocious English, which should not be endured, and the really good English, which is unattainable, there is a wide belt of what may be called tolerable English; English which is not excellent from a literary point of view, but is at least clear, grammatical, free from gross improprieties in respect to idiom, and reasonably faithful to the meaning of the original. Such tolerable English is all that can be expected in the ordinary routine of the class-room. It is, however, desirable that the learner become aware that there is a higher ideal, and that he have some practice in trying to reach it. To this end a passage in German text should occasionally be given out for a carefully prepared written translation, with instructions to take time and make the work just as good as possible. Such

translations should then be criticised by the teacher and compared with one another in the class. Attention should be called to the small points of idiom, arrangement, choice of words, turn of phrase, etc., which make up the difference between the tolerable and the excellent. In this way the pupil's literary sense will be cultivated; he will become familiar with the idea of translation as an art, and the effect will be to improve gradually the quality of his ordinary work.

The next question is: How long and to what extent should the routine translation of good German into tolerable English be insisted on in the class-room? The answer is: So long as and wherever the teacher is uncertain whether the meaning of the original is understood. If there is complete certainty that the learner *can* translate his passage of German into tolerable English, it is, as a rule, not worth while to have him do it; the time can be used to better advantage. An exception may be made, of course, in the case of pupils who are for any reason unusually backward in their English, or for such as may be suspected of not preparing their lessons. But for capable pupils who have a right attitude toward their teacher and their work, there presently comes a time when the routine translation in class of what they have previously prepared ceases to be profitable. They learn no new German in the process, and they do not improve their command of English. For A, B, C, and D, who have prepared their lessons and know perfectly well how to translate a given passage, to sit in the class while E actually translates it, means a waste of time. When that stage is reached, it is time to drop the systematic translation of the entire lesson in class, to call only for the rendering of words or passages that are liable to be misunderstood, and to use the time thus gained in some exercise more profitable than superfluous translation.

One such exercise is reading at sight. Since the general aim in the elementary course is to learn to read very easy narrative prose at sight, and not to learn to translate any specified texts, and since the candidate for admission to college will probably be tested upon some text that he has never studied, it is evident that considerable practice should be given in sight reading. Teachers sometimes object to this exercise on the ground that it encourages guesswork and inaccuracy. But the objection is not valid. The object of the exercise is to increase the learner's vocabulary, to make him feel that he can read German that he has not previously studied, and to give him facility in such reading. There is not the slightest objection to his guessing at the meaning of a new word. All our reading is largely a process of divination, and the better we can divine from the context, the better we can read. Of course, the wrong guesses must be corrected, and the teacher is there for that purpose. It is hardly necessary to say that for sight reading the very easiest texts that can be found should be chosen. Grimm's *Märchen* are well adapted for the earliest experiments, then Meissner's *Aus meiner Welt* or Volkmann's *Kleine Geschichten*.

6. *Reproductive translation into German.*—It will be observed that the program of work for the second year of the elementary course provides for practice "in the off-hand reproduction, sometimes orally and sometimes in writing, of the substance of short and easily selected passages." This is what the Germans call *freie Reproduktion*, and is one of the most profitable exercises possible. It teaches the pupil to give heed, not only to the meaning, but to the form in which it is expressed; to put thoughts in German with German as a starting-point. The language of the original should, of course, not be memorized verbatim; what is wanted is not an effort of the memory, but an attempt to express thought in German forms that are remembered in a general way, but not remembered exactly. The objection to independent translation from English into German is that for a long time it is necessarily mechanical. The translator has no help except his dictionary and grammar. His translation is mere upsetting. In free reproduction, on the contrary, he instinctively starts from his memory of the original. His thoughts tend to shape themselves in German form. In short, he learns to think in German.

SECTION VIII. THE INTERMEDIATE COURSE IN GERMAN

A. THE AIM OF THE INSTRUCTION

At the end of the intermediate course the pupil should be able to read at sight German prose of ordinary difficulty, whether recent or classical; to put into German a connected passage of simple English, paraphrased from a given text in German; to answer any grammatical questions relating to usual forms and essential principles of the language, including syntax and word-formation, and to translate and explain (so far as explanation may be necessary) a passage of classical literature taken from some text previously studied.

B. THE WORK TO BE DONE

The work should comprise, in addition to the elementary course, the reading of about four hundred pages of moderately difficult prose and poetry, with constant practice in giving, sometimes orally and sometimes in writing, paraphrases, abstracts, or reproductions from memory of selected portions of the matter read; also grammatical drill upon the less usual strong verbs, the use of articles, cases, auxiliaries of all kinds, tenses and moods (with special reference to the infinitive and subjunctive), and likewise upon word-order and word-formation.

C. SUGGESTIONS TO THE TEACHER

The intermediate course is supposed to be the elementary course, plus one year's work at the rate of not less than four recitations a week. Suitable reading matter for the third year can be selected from such works as the following: Ebner-Eschenbach's *Die Freiherren von Gemperlein*; Freytag's *Die Journalisten* and *Bilder aus der deutschen Vergangenheit*—for example, *Karl der Grosse*, *Aus den Kreuzzügen*, *Doktor Luther*, *Aus dem Staat Friedrichs des Grossen*; Fouqué's *Undine*; Gerstäcker's *Irrfahrten*; Goethe's *Hermann und Dorothea* and *Iphigenie*; Heine's poems and *Reisebilder*; Hoffmann's *Historische Erzählungen*; Lessing's *Minna von Barnhelm*; Meyer's *Gustav Adolf's Page*; Moser's *Der Bibliothekar*; Riehl's *Novellen*—for example, *Burg Neideck*, *Der Fluch der Schönheit*, *Der stumme Ratsherr*, *Das Spielmannkind*; Rosegger's *Waldheimat*; Schiller's *Der Neffe als Onkel*, *Der Geisterseher*, *Wilhelm Tell*, *Die Jungfrau von Orleans*, *Das Lied von der Glocke*, *Balladen*; Scheffel's *Der Trompeter von Säckingen*; Uhland's poems; Wildenbruch's *Das edle Blut*. A good selection would be: (1) one of Riehl's novellettes; (2) one of Freytag's "pictures"; (3) part of *Undine* or *Der Geisterseher*; (4) a short course of reading in lyrics and ballads; (5) a classical play by Schiller, Lessing, or Goethe.

The general principles of teaching set forth in the preceding section apply also to the work of the intermediate course. Translation should be insisted on so far as necessary, but the aim should be to dispense with it more and more. Every expedient should be employed which will teach the scholar to comprehend and feel the original directly, without the intervention of English. Occasional exercises in preparing very careful, written translations should be continued. Practice should be given in reading at sight from authors of moderate difficulty, such as Riehl or Freytag. The "free reproduction" should by all means be kept up. It will be found much more valuable at this stage than independent translation of English into German. In dealing with classical literature thoro literary studies are, of course, not to be expected, but an effort should be made to bring home to the learner the characteristic literary qualities of the text studied, and to give him a correct general idea of the author.

SECTION IX. THE ADVANCED COURSE IN GERMAN

A. THE AIM OF THE INSTRUCTION

At the end of the advanced course the student should be able to read, after brief inspection, any German literature of the last one hundred and fifty years that is free from any unusual textual difficulties, to put into German a passage of simple English prose, to

answer in German questions relating to the lives and works of great writers studied, and to write in German a short, independent theme upon some assigned topic.

B. THE WORK TO BE DONE

The work of the advanced course (last year) should comprise the reading of about five hundred pages of good literature in prose and poetry, reference readings upon the lives and works of the great writers studied, the writing in German of numerous short themes upon assigned subjects, independent translation of English into German.

C. SUGGESTIONS TO THE TEACHER

Suitable reading matter for the last year will be: Freytag's *Soll und Haben*; Fulda's *Der Talisman*; Goethe's dramas (except *Faust*) and prose writings (say, extracts from *Werther* and *Dichtung und Wahrheit*); Grillparzer's *Ahnfrau* or *Der Traum ein Leben*; Hauff's *Lichtenstein*; Heine's more difficult prose (for example, *Ueber Deutschland*); Kleist's *Prinz von Homburg*; Körner's *Zriny*; Lessing's *Emilia Galotti* and prose writings (say, extracts from the *Hamburgische Dramaturgie* or *Laokoon*); Scheffel's *Ekkehard*; Schiller's *Wallenstein*, *Maria Stuart*, *Braut von Messina*, and historical prose (say, the third book of the *Geschichte des dreissigjährigen Krieges*); Sudermann's *Johannes*; Tieck's *Genoveva*; Wildenbruch's *Heinrich*.

A good selection from this list would be: (1) a recent novel, such as *Ekkehard* or *Soll und Haben*, read not in its entirety, but in extracts sufficient to give a good idea of the plot, the style, and the characters; (2) *Egmont* or *Götz*; (3) a short course of reading in Goethe's prose (say, the Sesenheim episode from *Dichtung und Wahrheit*); (4) *Wallenstein's Lager* and *Wallenstein's Tod*, with the third book of the *Thirty Years' War*; (5) *Emilia Galotti*; (6) a romantic drama, such as *Genoveva* or *Der Prinz von Homburg*. It is assumed that by the time the fourth year is reached, if the preceding instruction has been what it should be, translation in class can be largely dispensed with and the works read somewhat rapidly. Of course, they cannot be thoroly studied, but thoro literary study belongs to the college or the university. It is not sound doctrine for the secondary school that one work studied with the painstaking thoroughness of the professional scholar is worth half a dozen read rapidly. In the secondary school the aim should be to learn to read easily, rapidly, and yet with intelligent, general appreciation, somewhat as an ordinary educated American reads Shakespeare. Such a person in reading Shakespeare will find much that he does not fully understand: archaic phrases, obscure allusions, etc. If he were to work out all these things in the manner of a scholar, and go deeply into the literary, historical, and psychological questions involved in a single one of Shakespeare's great plays, it would take a very long time. Nevertheless, he can read the play intelligently in a few hours. An editor's note helps him quickly over the graver difficulties, and when he has done he has a good general idea of the work, and has been greatly profited by the reading of it.

The other lines of work suggested for the advanced course appear to require no further comment. They explain themselves, and grow naturally out of what has gone before.

SECTION X. THE ELEMENTARY COURSE IN FRENCH

A. THE AIM OF THE INSTRUCTION

At the end of the elementary course the pupil should be able to pronounce French accurately, to read at sight easy French prose, to put into French simple English sentences taken from the language of everyday life, or based upon a portion of the French text read, and to answer questions on the rudiments of the grammar as defined below.

B. THE WORK TO BE DONE

During the first year the work should comprise : (1) careful drill in pronunciation ; (2) the rudiments of grammar, including the inflection of the regular and the more common irregular verbs, the plural of nouns, the inflection of adjectives, participles, and pronouns ; the use of personal pronouns, common adverbs, prepositions, and conjunctions ; the order of words in the sentence, and the elementary rules of syntax ; (3) abundant easy exercises, designed not only to fix in the memory the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression ; (4) the reading of from 100 to 175 duodecimo pages of graduated texts, with constant practice in translating into French easy variations of the sentences read (the teacher giving the English), and in reproducing from memory sentences previously read ; (5) writing French from dictation.

During the second year the work should comprise : (1) the reading of from 250 to 400 pages of easy modern prose in the form of stories, plays, or historical or biographical sketches ; (2) constant practice, as in the previous year, in translating into French easy variations upon the texts read ; (3) frequent abstracts, sometimes oral and sometimes written, of portions of the text already read ; (4) writing French from dictation ; (5) continued drill upon the rudiments of grammar, with constant application in the construction of sentences ; (6) mastery of the forms and use of pronouns, pronominal adjectives, of all but the rare irregular verb forms, and of the simpler uses of the conditional and subjunctive.

Suitable texts for the second year are : About's *Le roi des montagnes*, Bruno's *Le tour de la France*, Daudet's easier short tales, La Bédollère's *La Mère Michel et son chat*, Erckman-Chatrian's stories, Foa's *Contes biographiques* and *Le petit Robinson de Paris*, Foncin's *Le pays de France*, Labiche and Martin's *La poudre aux yeux* and *Le voyage de M. Perrichon*, Legouvé and Labiche's *La cigale chez les fourmis*, Malot's *Sans famille*, Mairet's *La tâche du petit Pierre*, Mérimée's *Colomba*, extracts from Michelet, Sarcey's *Le siècle de Paris*, Verne's stories.

C. SUGGESTIONS TO THE TEACHER

The suggestions already offered upon the teaching of elementary German are, in the main, equally applicable to the teaching of elementary French. While each language has its own peculiar difficulties that require special attention from the teacher, the general principles that should regulate the work are the same for both. To avoid needless repetition, we refer the reader back to what is said in Section VII, c, and content ourselves here with adding a few further observations which may be regarded as supplementary.

The educational value of the study of French in cultivating habits of careful discrimination, of mental alertness, of clear statement, must never be lost from view, and the expediency of an exercise must often be determined by its utility in attaining these ends. The knowledge gained in the secondary school alone can rarely be of immediate commercial value, but it should be a most serviceable foundation for later acquirements, and the advocates of oral methods may fairly lay some stress on this consideration. The demand for more spoken French in the class-room rests chiefly, however, on other grounds, which may be summarized as follows :

1. Tongue and ear are most efficient aids to the memory, and he who depends on eye alone deprives himself of indispensable allies.

2. Oral work gives vivacity to the class, stimulates the pupil by active participation, and encourages him by making him feel that he is gaining a practical command of the language.

3. In reproducing French sentences several can be spoken in the time needed to write one.

4. The hearer is compelled to grasp the sentence as a whole, while the reader is apt to dwell on separate words, distorting and often reversing the sense, which can only be

obtained by making the sentence the unit of thought and interpreting each word in the light of its relation to its fellows.

5. The rapidity of speech also conduces to grasping thought directly from the French with no intermediate English. Many readers really read only the English into which, more or less laboriously, they change the French words. It is needless to dwell on the fact that such readers get their entire thought from a translation, usually a very bad one, and can never have any exact perception of literary excellence in French nor distinguish shades of meaning different from those to which they have been accustomed in English. It is hard to see how such a one can have any vivid conception of a lyric, an oration, or a dialog; nor can he understand how, when translation is required, the proper order is French-thought-English, and not French-English, with the thought last or never.

On the other hand, that time may be economically used, rambling, aimless talking must not be tolerated in the class-room; and a teacher who does not possess a good pronunciation and a ready command of the language generally does far more harm than good by practicing on his pupils. Whatever recommendations the committee has made as to oral work apply only to those teachers who can speak French well.

Especially with beginners should the French spoken be accurately pronounced. Faults of pronunciation once fixed are very difficult to eradicate. In some places French has been introduced into grades below the high school, and the classes intrusted to teachers unable to pronounce well. Irreparable injury has thus been done. The utmost pains must be taken at the beginning, especially with the vowels; and the separate sounds, and the words containing them, should be pronounced many times by the teacher and repeated by the pupil. For a long time every new word should thus be treated, and, unless a phonetic text is used, the pupil should always hear a new word before he tries to pronounce it.

Careful memorizing and frequent repetition of a few lines of simple prose are helpful and furnish a standard of pronunciation to which new words may be referred. Both for this and for mastering colloquial and idiomatic expressions, word-order, and grammatical forms, it is advised that a small amount of French, preferably simple prose, be carefully memorized the first year. Later, selections should be made for their literary interest.

Most teachers know how they prefer to teach the rudiments of grammar in a given class. We may remark, however, that it is not for the secondary school to spend time over the many pages of exceptions, peculiarities in number and gender, idioms that one rarely sees and never thinks of using, and grammatical puzzles for which each learned grammarian has a different solution, that form so large a part of some grammars. The great universals, however (the regular and the common irregular verbs; negative and interrogative variations; the common use and meaning of moods and tenses; the personal pronouns and their position; the general principles governing the agreement of adjectives, pronouns, and participles; the partitive constructions; the possessives, demonstratives, interrogatives, and relatives; the most common adverbs, conjunctions, and prepositions), should all be thoroly understood by the end of the second year of the high-school study, and subsequent study should give considerable facility in using them.

The verb seems most formidable; but when it is perceived that most forms of all verbs may be treated as identically derived from the "primitive tenses," the difficulties appear less numerous, and when the principle of stem-strengthening under the influence of tonic accent, persisting in the older and more common verbs, is a little understood, the number of really unique forms is inconsiderable.

Translating into English should mean giving in well-chosen language the exact thought and spirit of the original. Thus understood, it is extremely difficult, and should never be attempted by the pupil before the meaning of the original is clear to him. It is

then rather an exercise in English than in French. Nothing should be accepted as English which is not English. The teacher who complacently listens while a pupil turns good French into bad English is, to put it mildly, not doing his duty. Translating into English is often the most rapid means of ascertaining whether the pupil has correctly understood the French read, but a few well-chosen questions asked and answered in French, or an abstract in the same language, is often equally effective as a test, and far better as training in French.

Just as English should be English, French should be French; and merely using French words and conforming to grammatical rules do not make a sentence French. At first, sentences formed by pupils should exactly follow French model sentences, being either verbatim reproductions or differing only in simple and immaterial verbal changes. Not until the pupil, by much assimilation of French models, has become imbued with the form and spirit of the language, can he be safely left to his own invention. In choosing reading matter, the tendency is to select something too hard. The teacher adopts a book because it is world-renowned, because it interests him personally, because it teaches a valuable lesson, moral or historical. While all pedagogical roads should lead to the Rome of a broad culture, the attempt to teach literature, æsthetics, history, or morality from a work in which linguistic difficulties dismay the pupil and engross his attention, can only end by making him detest both the book and its lessons. The beginner in French can be taught these things best in the vernacular; while searching a dictionary to discover whether *fut* comes from *faire* or from *falloir*, he has little leisure to think of the relative merits of literary schools. Give him at first the easiest reading attainable, remembering that simple language does not mean infantile conceptions, nor *vice versa*. Let there be frequent repetition, that he may be encouraged by finding that he can cover a respectable number of lines at a lesson. Entertain no thought of teaching literature until the pupil is quite familiar with ordinary prose and can read page after page of the text assigned with no great need of grammar or dictionary. The classics of dramatic literature may very properly be postponed until the fourth year, and we do not consider them always desirable even then; but a few have been given among texts suitable for the third year in the hope that these rather than others will be selected by teachers who, for reasons of their own, choose to read something of the kind at this stage of the course.

The reading lists are meant to be illustrative simply, not exhaustive. Other texts equally good might no doubt be mentioned under each head. The answers to the committee's circulars indicate clearly that teachers would not welcome a narrow range of prescribed reading, such as teachers of Latin have in their Cæsar, Cicero, and Virgil. A definite curriculum of that kind would no doubt have its advantages, but in the case of the modern languages it is not practicable and, upon the whole, not desirable. The disadvantages would far outweigh the advantages. The mass of available literature is so great, the preferences of teachers and the needs of classes so divergent, that the only safe course is to leave a large latitude of choice. This being so, it has seemed best merely to give examples of the kind of reading appropriate to each year.

SECTION XI. THE INTERMEDIATE COURSE IN FRENCH

A. THE AIM OF THE INSTRUCTION

At the end of the intermediate course the pupil should be able to read at sight ordinary French prose or simple poetry, to translate into French a connected passage of English based on the text read, and to answer questions involving a more thorough knowledge of syntax than is expected in the elementary course.

B. THE WORK TO BE DONE

This should comprise the reading of from 400 to 600 pages of French of ordinary difficulty, a portion to be in the dramatic form; constant practice in giving French

paraphrases, abstracts or reproductions from memory of selected portions of the matter read; the study of a grammar of modern completeness; writing from dictation.

Suitable texts are: About's stories; Augier and Sandeau's *Le Gendre de M. Poirier*; Béranger's poems; Corneille's *Le Cid* and *Horace*; Coppée's poems; Daudet's *La Belle-Nivernaise*; La Brète's *Mon oncle et mon curé*; Madame de Sévigné's letters; Hugo's *Hernani* and *La Chute*; Labiche's plays; Loti's *Pêcheur d'Islande*; Mignet's historical writings; Molière's *L'Avare* and *Le Bourgeois Gentilhomme*; Racine's *Athalie*, *Andromaque*, and *Esther*; George Sand's plays and stories; Sandeau's *Mademoiselle de la Seiglière*; Scribe's plays; Thierry's *Récits des temps mérovingiens*; Thiers's *L'Expédition de Bonaparte en Égypte*; Vigny's *La canne de jonc*; Voltaire's historical writings.

SECTION XII. THE ADVANCED COURSE IN FRENCH

A. THE AIM OF THE INSTRUCTION

At the end of the advanced course the pupil should be able to read at sight, with the help of a vocabulary of special or technical expressions, difficult French not earlier than that of the seventeenth century; to write in French a short essay on some simple subject connected with the works read; to put into French a passage of easy English prose; and to carry on a simple conversation in French.

B. THE WORK TO BE DONE

This should comprise the reading of from 600 to 1,000 pages of standard French, classical and modern, only difficult passages being explained in the class; the writing of numerous short themes in French; the study of syntax.

Suitable reading matter will be: Beaumarchais's *Barbier de Séville*; Corneille's dramas; the elder Dumas's prose writings; the younger Dumas's *La question d'argent*; Hugo's *Ruy Blas*, lyrics, and prose writings; La Fontaine's fables; Lamartine's *Graziella*; Marivaux's plays; Molière's plays; Musset's plays and poems; Pellissier's *Mouvement littéraire au XIX^e siècle*; Renan's *Souvenirs d'enfance et de jeunesse*; Rousseau's writings; Sainte-Beuve's essays; Taine's *Origines de la France contemporaine*; Voltaire's writings; selections from Zola, Maupassant, and Balzac.

SECTION XIII. SPECIMEN EXAMINATION PAPERS FOR ADMISSION TO COLLEGE

The complaint is sometimes heard from teachers in the secondary schools—and investigation shows it to be not altogether groundless—that, even at colleges having the same or very similar requirements for admission, the entrance examinations are apt to differ not a little in respect to difficulty and in respect to the general character of the questions asked. To a certain extent this lack of uniformity is inevitable. With the best intentions examiners will differ more or less in their estimate of difficulty and in their choice of test questions. Some will prefer to set a more difficult paper and mark liberally; others to set an easier paper and mark more closely. The only obvious way to bring about uniformity in the papers set would be to intrust the preparation of them each year to a central committee or bureau (say of the Modern Language Association), which should furnish them on demand, in sealed packages and at a fixed rate, to such colleges as might wish to receive them. Such a plan would have much in its favor. Under its operation there would be no room for criticism of particular colleges. The papers would presumably be prepared with very great care; they would improve in the light of criticism, would furnish teachers with a pattern to work by, and so could hardly fail to make for greater excellence and uniformity in the work of our secondary schools. The feasibility of such a plan would depend largely upon the attitude of the colleges, and whether it would work well in practice could only be determined by trial. Difficulties of one kind and another

would no doubt arise, but they do not appear in advance to be insuperable. At any rate, the plan seems worthy of serious consideration.

Meanwhile, without wishing to imply an exclusive preference for a written as opposed to an oral test (the best plan, wherever practicable, is undoubtedly a combination of the two), the committee has thought it appropriate to close this report with a series of papers designed to illustrate in a general way the kind of test which, in our opinion, the candidate for admission to college may reasonably be expected to pass upon completing any of the courses above described. The papers are by no means offered as perfect models for imitation, but as an approximate indication of what, in our judgment, the college-entrance examination should be. The time required is estimated in each case at about two hours. Unless the contrary is expressly stated, the texts are not supposed to have been previously studied by the candidate.

A. ELEMENTARY FRENCH

I. Translate into English :

(a) Lui, penché sur sa chaise, regardait dans la cheminée, les yeux fixes. Et tout à coup, comme on se taisait, il se tourna de mon côté et me dit d'un ton de bonne humeur :

Voici bientôt le printemps, monsieur Florence, nous ferons encore plus d'un bon tour dans la montagne ; j'espère que cette année vous viendrez plus souvent, car vous avez beau dire, vous aimez ce pays autant que moi . . .

He ! je ne dis pas le contraire, Georges ; mais à ton âge, dans ta position . . . Enfin laissons cela . . . Et puisque tu restes, eh bien, oui, tu as raison, nous irons plus souvent nous promener ensemble dans la montagne ; je suis toujours content d'être avec toi.

À la bonne heure, dit-il en riant, voilà ce qui s'appelle parler.

Et durant plus d'une demi-heure, la conversation roula sur les fleurs de nos montagnes, sur la belle vallée de la Sarre-Rouge, etc. On aurait cru que rien d'extraordinaire ne s'était dit.—*Erckmann-Chatrian*.

(b) Le temps était sombre, il tombait une petite pluie de brouillard qui épaississait encore l'obscurité, les becs de gaz brûlaient mal, et leur lumière, réfléchiée par les flaques d'eau, éclairait la rue déserte d'une façon incertaine et changeante. Le jeune homme marchait rapidement, son parapluie baissé en avant pour s'abriter de la pluie qui lui frappait dans la figure. Tout à coup, sans qu'il les eût vus venir ou sortir d'une embrasure de porte, il se trouva en face de deux hommes et, surpris de cette brusque apparition, il sauta de côté par un mouvement instinctif et nerveux. Il était à ce moment à une centaine de mètres de chez lui, à l'encoignure d'une ruelle qui descend vers la rue de Charenton.—*Malot*.

(c) Un jeune homme plein de passions, assis sur la bouche d'un volcan, et pleurant sur les mortels dont à peine il voyait à ses pieds les demeures, n'est sans doute, ô vieillards ! qu'un objet digne de votre pitié ; mais quoi que vous puissiez penser de René, ce tableau vous offre l'image de son caractère et de son existence : c'est ainsi que toute ma vie j'ai eu devant les yeux une création à la fois immense et imperceptible, et un abîme ouvert à mes côtés.—*Chateaubriand*.

II. (a) Write the five principal parts of the three verbs (the forms here given occur in I, b) : *vus, sortir, descend*.

(b) Write a synopsis of the conjugation (first person singular of each tense) of *se réjouir* and *savoir*.

(c) Write the inflection of : the present indicative of *boire* and *faire* ; the future of *pouvoir* ; the present subjunctive of *prendre*.

(d) Write the forms of the demonstrative pronouns.

(e) In what ways may the use of the passive voice be avoided in French ?

II. Translate into French :

- (a) Here is the pen, shall I send it to her? No; do not send it to her; give it to me.
 (b) Cats and dogs are domestic animals.
 (c) You must give them some white bread and good coffee, if they have none.
 (d) The old man is very well this evening, altho he has worked all day.
 (e) We have just searched for your gloves, but we do not find them in the room where you left them a quarter of an hour ago.
 (f) Why do we weep for mortals whose life and character we scarcely know? We always have them before our eyes. Whatever we may think of them, they are surely worthy of our pity.

B. INTERMEDIATE FRENCH

I. Translate into English :

(a) Nulle part, à aucune époque de ma vie, je n'ai vécu aussi complètement seul. La maison était loin de la route, dans les terres, écartée même de la ferme dépendante dont les bruits ne m'arrivaient pas. Deux fois par jour, la femme du fermier me servait mon repas, à un bout de la vaste salle à manger dont toutes les fenêtres, moins une, tenaient leur volets clos. Cette Provençale noire, le nez écrasé comme un Cafre, ne comprenant pas quelle étrange besogne m'avait amené à la campagne en plein hiver, gardait de moi une méfiance et une terreur, posait les plats à la hâte, se sauvait sans un mot, en évitant de tourner la tête. Et c'est le seul visage que j'ai vu pendant cette existence, distraite uniquement, vers le soir, par une promenade dans une allée de hauts platanes, à la tristesse d'un soleil froid et rouge dont les grenouilles saluaient le coucher hâtif de leurs discordantes clameurs. — *Daudet*.

(b) Amis, loin de la ville,
 Loin des palais de roi,
 Loin de la cour servile,
 Loin de la foule vile,
 Trouvez-moi, trouvez-moi,
 Aux champs où l'âme oisive
 Se recueille en rêvant;
 Sur une obscure rive
 Où du monde n'arrive
 Ni le flot, ni le vent,

Quelque asile sauvage,
 Quelque abri d'autrefois,
 Un port sur le rivage,
 Un nid sous le feuillage,
 Un manoir dans les bois!
 Trouvez-le moi bien sombre,
 Bien calme, bien dormant,
 Couvert d'arbres sans nombre,
 Dans le silence et l'ombre
 Caché profondément!

— *V. Hugo*.

(c) DENISE. Fernand ?

FERNAND. Qu'est-ce que tu veux ?

DENISE. Où as-tu mis le livre que tu as été chercher pour mademoiselle de Bar-dannes ?

FERNAND. Là, sur la table. Est-ce qu'elle est déjà prête ?

DENISE. Pas encore, mais elle achève de s'habiller. (*Elle prend le livre sur la table.*)

ANDRÉ, *entrant, à Denise*. Je n'ai pas pu vous demander tout à l'heure, devant tout ce monde, mademoiselle, si vous êtes tout à fait remise de votre indisposition d'hier qui vous a empêchée de dîner avec les amis qui me sont arrivés, dont deux sont déjà des vôtres. J'espère que ce soir j'aurai le plaisir et l'honneur de vous voir à notre table, ainsi que monsieur et madame Brissot.

DENISE. Oui, monsieur, ma mère m'a déjà fait part de votre aimable invitation.

FERNAND, *à André*. Et moi, je vais monter un peu d'avance le cheval de ta sœur pour le bien mettre à sa main ; montes-tu avec nous ?

ANDRÉ. Non, nous avons une inspection à faire avec M. Thouvenin.

FERNAND. A tantôt, alors.

II. (a) Write a synopsis, in the first person singular, including infinitive, participles, and imperative singular, of the five verbs (see I, a) : *vécu, tenaient, comprenait, amené, vu*,

(b) What are the general principles governing the use of the indicative, conditional, and subjunctive moods?

III. Translate into French :

Tell me, what has kept you from selling that old house, the shutters of which always remain closed? It is quite alone; at night one hears strange noises in it; and little boys who have to pass near it run away without looking at it. I am sorry you did not sell it to M. André when you sold him your farm and your brother's. You will do well to accept what M. André has offered you for it; and I wish you to go and see him this very evening.

C. ADVANCED FRENCH

I. Translate into English :

(a) Tous ces dons sont communs aux orateurs; on les retrouve avec des proportions et des degrés différents chez des hommes comme Cicéron et Tite-Live, comme Bourdaloue et Bossuet, comme Fox et Burke. Ces beaux et solides esprits forment une famille naturelle, et les uns comme les autres ont pour trait principal l'habitude et le talent de passer des idées particulières aux idées générales, avec ordre et avec suite, comme on monte un escalier en posant le pied tour à tour sur chaque degré. L'inconvénient de cet art, c'est l'emploi du lieu commun. Les hommes qui le pratiquent ne peignent pas les objets avec précision, ils tombent aisément dans la rhétorique vague. Ils ont en main des développements tout faits, sorte d'échelles portatives qui s'appliquent également bien sur les deux faces contraires de la même question et de toute question.—*Taine.*

(b) Les règles générales ne sont que des expédients mesquins pour suppléer à l'absence du grand sens moral, qui suffit à lui seul pour révéler en toute occasion à l'homme ce qui est le plus beau. C'est vouloir suppléer par des instructions préparées d'avance à la spontanéité intime. La variété des cas déjoue sans cesse toutes les prévisions. Rien, rien ne remplace l'âme : aucun renseignement ne saurait suppléer chez l'homme à l'inspiration de sa nature.—*Renan.*

(c) Phèdre, si ton chasseur avait autant de charmes
Qu'en donne à son visage un si docte pinceau,
Ta passion fut juste et mérite des larmes
Pour plaindre le malheur qui le met au tombeau.

Et si tu parus lors avec autant de grâce
Qu'en ces vers éclatants qui te rendent le jour,
Estime qui voudra son courage de glace,
Sa froideur fut un crime, et non pas ton amour.

Aussi, quoi qu'on ait dit du courroux de Thésée,
Sa mort n'est pas l'effet de son ressentiment,
Mais les Dieux l'ont puni pour t'avoir méprisée,
Et fait de son trépas un juste châtement.

—*Corneille.*

(d) Du Dieu qui nous créa la clémence infinie,
Pour adoucir les maux de cette courte vie,
A placé parmi nous deux êtres bienfaisants,
De la terre a jamais aimables habitants,
Soutiens dans les travaux, trésors dans l'indigence,
L'un est le doux sommeil, et l'autre est l'espérance:
L'un, quand l'homme accablé sent de son faible corps
Les organes vaincus sans force et sans ressorts,
Vient par un calme heureux secourir la nature
Et lui porter l'oubli des peines qu'elle endure;
L'autre anime nos cœurs, enflamme nos desirs,
Et même, en nous trompant, donne de vrais plaisirs;

Mais aux mortels chéris à qui le ciel l'envoie
 Elle n'inspire point une infidèle joie;
 Elle apporte de Dieu la promesse et l'appui;
 Elle est inébranlable, et pure comme lui.

—Voltaire.

II. (a) Explain the two cases of subjunctive that occur in I, (c).

(b) Point out two cases of poetic inversion in I, (d).

(c) Define *aimable* as used in classic poetry and as used in modern prose.

III. Write fifteen or twenty lines of French about the author of one of the preceding selections, or about one of the persons mentioned in I, (a).

IV. Translate into French:

The following day, at three o'clock in the afternoon, they came to Surgères. The cardinal was waiting there for Louis XIII. The minister and the king exchanged many affectionate greetings, and congratulated each other on the lucky chance that had rid France of the relentless enemy who was stirring up Europe against her. Thereupon the cardinal, having been informed by Rochefort that D'Artagnan had been arrested, and being eager to see him, took leave of the king, and returned to the house he occupied, near the bridge of La Pierre. There he found D'Artagnan standing without a sword before the door, and the three guardsmen armed.

D. ELEMENTARY GERMAN

I. Translate into English:

(a) Ich folgte sogleich dem Boten, und er führte mich in ein kleines Zimmer, das seiner schlechten Einrichtung¹ nach zu den billigsten des Gasthauses gehören musste. Auf einem Bette lag eine schöne, junge Frau mit geschlossenen Augen und totenbleichen,² aber edlen und feinen Zügen. Ein Dienstmädchen war mitleidig um sie bemüht,³ und neben ihr im Bette saß ein etwa dreijähriges, blondlockiges Bübchen, jämmerlich⁴ weinend und seine Mutter mit den süßesten Namen rufend und flehentlich⁵ bittend, sie möchte doch die Augen aufmachen und ihn wieder lieb haben. Ich hob den kleinen Burschen vom Bett herunter und setzte ihn auf den Boden nieder. Er blieb auch ruhig sitzen, seine grossen, blauen Augen unverwandt⁶ auf die Mutter gerichtet. Meine Bemühungen, diese wieder zum Bewusstsein⁷ zu bringen, wurden bald mit Erfolg belohnt. Die Frau atmete schwer und schlug die Augen auf, aber sie war zu schwach um auf meine Fragen vernehmlich⁸ antworten zu können.—Adapted from *Helene Stöckl*.

(b) Waldgegend. Vorn rechts ein altertümliches⁹ Gebäude; vor demselben ein Tisch mit Stühlen und einer Bank, unter einem Baume; links ein Thor; im Hintergrunde eine Mauer. Vor derselben eine Anhöhe.¹⁰

HEDWIG (*sings*):

Wenn ich ein Vöglein wär'
 Und auch zwei Flüglein hätt',—

URSULA (*kommt mit Frühstück, das sie auf den Tisch stellt*): Du bist ja schon früh bei der Hand, mein Kind.

¹ Einrichtung, *equipment, furnishings*.

² Bleich, *pale*.

³ Bemüht, *occupied*.

⁴ Jämmerlich, *piteously*.

⁵ Flehentlich, *imploringly*.

⁶ Unverwandt, *incessantly*.

⁷ Bewusstsein, *consciousness*.

⁸ Vernehmlich, *audibly*.

⁹ Altertümlich, *ancient-looking*.

¹⁰ Anhöhe, *elevation*.

HEDWIG: Sagst du nicht immer: Morgenstund' hat Gold im Mund?

URSULA: Das ist schon recht, dasz du mit der Lerche auffliegst, aber die Vögel, die zu früh singen, holt am Abend die Katze.

HEDWIG: Soll ich eine Lerche sein, dann musz ich auch mein Lied für mich haben.

URSULA: Das Lied paszt nur nicht an diesem Ort.

HEDWIG: Aber es paszt zu meinem Herzen. Ja, alte Ursula, ich wünschte, dasz ich ein Vöglein wär', und auch zwei Flügel hätt'.

URSULA: Und wo sollte es dann hinaus?

HEDWIG: Weit, weit weg! Über die Mauer, über die Bäume, über den Wald, über das Feld — in die ferne, schöne Gotteswelt!

II. (a) Give the nominative and genitive singular (with definite article) and the nominative plural of *Boten, Füße, Zimmer, Einrichtung, Hauses, Bette, Frau, Auge, Zügen, Mutter, Fragen, Gestalt*.

(b) Decline thruout the German phrases meaning *the new house, my dear friend*.

(c) Give the principal parts of *muszte, lag, geschlossen, rufend, bittend, möchte, aufmachen, hob herunter, blieb, sitzen, bringen, schlug auf, können*.

(d) Give the third person, singular, of each tense in the indicative mode, of *bittend, blieb, schlug auf*.

(e) What case is governed by each of the prepositions: *auf, aus, bei, durch, für, in, mit, über, um, von, wegen, zu*?

III. Translate into German:

(a) Who is that old gentleman with the white beard?¹ Surely I have seen him somewhere.²

(b) So this is your new house. What a lovely view³ from this window! But I do not see the old castle⁴ of which you told me in your letter.

(c) He has lived two whole years in Germany, and has just returned. He speaks German pretty well, but does not seem to have read much.

(d) I will do the best I can, but you must not expect too much. Perhaps it would be better if you should go to him yourself.

(e) Come now, Hedwig, and eat your breakfast. You are not a bird and cannot fly. And, after all,⁵ is it not better to be a pretty girl than a stupid⁶ bird?

¹ Beard, *der Bart*. ² Somewhere, *irgendwo*. ³ View, *die Aussicht*. ⁴ Castle, *das Schloß*.
⁵ After all, *am Ende*. ⁶ Stupid, *dumm*.

E. INTERMEDIATE GERMAN

I. Translate into English:

(a) Die Wohnungen in den Bädern von L. sind entweder unten in einem Dorf, das von hohen Bergen umschlossen ist, oder sie liegen auf einem dieser Berge selbst, unfern der Hauptquelle, wo eine pittoreske Häusergruppe in das reizende Thal hinabschaut. Einige aber liegen auch einzeln zerstreut an dem Bergesabhängen, und man musz mühsam hinaufkommen durch Weinreben, Myrtengesträuch, Lorbeerbüsche und andere vornehme Blumen und Pflanzen, ein wildes Paradies. Ich habe nie ein reizenderes Thal gesehen, besonders wenn man von der Terasse des oberen Bades, wo die ernstgrünen Cypressen stehen, ins Dorf hinabschaut. Man sieht dort die Brücke, die über ein Flüsschen führt, welches L. heiszt, und, das Dorf in zwei Theile durchschneidend, ein Geräusch hervorbringt, als wolle es die angenehmsten Dinge sagen, und könne vor dem allseitig plaudernden Echo nicht zu Worte kommen. — *Heine*.

(b) Bernhard schritt durch enge Gassen nach dem Markte. Er fand die Strassen voll von geschäftigen Menschen, die den Fremdling neugierig und forschend ansahen, viele unter ihnen in mangelhafter Bekleidung, mit bleichen und vergrämten Gesichtern. Auch

die Häuser waren mit Einliegern¹ überfüllt, noch in den Dachfenstern guckten Kinder-

¹ Einlieger, *lodger*.

köpfe und hing die Wäsche armer Leute. Aus dem engen Höfen hörte er Gebrüll der Rinder, und neben den Hunden liefen grunzende Schweine vor den Hausthüren. Denn viele Landleute waren nach der Stadt geflüchtet und hausten mit ihrem Vieh gedrängt in jämmerlichen Wohnungen. Auch der Marktplatz war mit Bretterbuden und Leinwandzelten² besetzt, an welchen armselige Frauen wuschen und kochten und halbnackte Kin-

² Leinwandzelt, *canvas tent*.

der auf den Steinen spielten. — *Freytag*.

GESSLER.

(c) ¹ Nun, Tell! weil du den Apfel triffst vom Baume

¹ The candidate is here supposed to have read Schiller's *Tell*. If he has not, passage (c) should be replaced by another, taken from a classic previously studied.

Auf hundert Schritt, so wirst du deine Kunst
Vor mir bewähren müssen. Nimm die Armbrust —
Du hast sie gleich zur Hand — und mach dich fertig,
Einen Apfel von des Knaben Kopf zu schieszen —
Doch, will ich raten, ziele gut, dasz du
Den Apfel treffest auf den ersten Schusz!
Denn fehlst du ihn, so ist dein Kopf verloren.

[*Alle geben Zeichen des Schreckens.*]

TELL.

Herr, welches Ungeheure sinnet Ihr
Mir an? — Ich soll vom Haupte meines Kindes —
Nein, nein doch, lieber Herr, das kommt Euch nicht
Zu Sinn. — Verhüt's der gnäd'ge Gott. — Das könnt Ihr
Im Ernst von einem Vater nicht begehren!

II. (a) Compare the adjectives *alt*, *kurz*, *bedeutend*, *wild*, *dunkel*, *hoch*, *ober*, *erst* *deutsch*, *ganz*.

(b) Explain the use of *sein* and *haben* as auxiliaries of tense, and put into German: (1) The boy has fallen into the water. (2) He has traveled much, but seen little. (3) I have remained too long. (4) I have been sitting in my room all day. (5) You have slept two hours. (6) The child has fallen asleep.¹

¹ Fall asleep, *einschlafen*.

(c) How do the modal auxiliaries differ in conjugation from ordinary weak verbs, and how from strong verbs? Put into German: (1) I will tell you something. (2) We cannot go. (3) He had to stay at home. (4) I should like to know. (5) She will not be permitted to come. (6) I have not been able to see him.

(d) In passage (c) explain (1) the plural *Schritt*, (2) the subjunctive *treffest*, (3) the use of the article in *des Schreckens*.

III. Translate into German:

There was once an old goat¹ that had seven kids.² One day she had to go out into

¹ Goat, *die Ziege*. ² Kid, *Geislein*.

the woods to get food³ for her young ones. So she called them all to her and said: "I

³ Food, *das Futter*.

must go away now, and shall not come back till evening. You must all stay in the house

and not let anyone in till I come home. If the wolf comes, you will know him by⁴ his

⁴ By, *an*.

rough⁵ voice and his black feet." Soon the wolf came and said: "Open the door and

⁵ Rough, *rauh*.

let me in. I am your mother and have brought you some cakes." But the kids knew by the rough voice that it was not their mother, and the oldest kid looked out of the window and saw the wolf standing there and told him to go away.

F. ADVANCED GERMAN

I. Translate into English:

(a) Die Kunst ist lang, das Leben kurz, das Urteil schwierig, die Gelegenheit flüchtig. Handeln ist leicht, Denken schwer, nach dem Gedachten Handeln unbequem. Die Nachahmung ist uns angeboren, das Nachzuahmende wird nicht leicht erkannt. Selten wird das Treffliche gefunden, seltener geschätzt. Die Höhe reizt uns, nicht die Stufen; den Gipfel im Auge wandeln wir gerne auf der Ebene. Nur ein Teil der Kunst kann gelehrt werden, der Künstler braucht sie ganz. Wer sie halb kennt, ist immer irre und redet viel; wer sie ganz besitzt, mag nur thun und redet selten oder spät. Jene haben keine Geheimnisse und keine Kraft; ihre Lehre ist wie gebackenes Brod, schmackhaft und sättigend für *einen* Tag: aber Mehl kann man nicht säen, und die Saatfrüchte sollen nicht vermahlen werden. Die Worte sind gut, sie sind aber nicht das Beste. Das Beste wird nicht deutlich durch Worte. Der Geist, aus dem wir handeln, ist das Höchste. Niemand weisz, was er thut, wenn er recht handelt; aber des Unrechten sind wir uns immer bewusst. Des echten Künstlers Lehre schlieszt den Sinn auf; denn wo die Worte fehlen, spricht die That. Der erste Schüler lernt aus dem Bekannten das Unbekannte entwickeln und nähert sich dem Meister. — *Goethe*.

(b) Alle Morgen wird auf unseren Frühstückstisch mit der Zeitung eine Bundel der verschiedenartigsten Neuigkeiten gelegt: Weltlauf und Privatschicksale, Handel und Verkehr, Feuilleton und Theaterskandal, Börse und pikanter Roman. Unter dieser Fülle von Dingen, wie Vieles davon ist brauchbar für unser Leben und unsere Bildung? Wie Vieles nährt das heilige Feuer der Humanität? Und wie Vieles schmeichelt unseren schlimmeren Neigungen und Trieben? Man sage nicht, dass hier nur das Angebot der Nachfrage entspreche; die Nachfrage hätte zurückgedrängt werden können, wäre das Angebot nicht so eifrig gewesen. Und wenn es dabei bliebe! Aber dabei hat es sein Bewenden nicht, der Leser erhält durch die Zeitung nicht bloz den Stoff, sondern den Stoff in einer bestimmten Form und Fassung, begleitet von einem entschiedenen, wenngleich anonymen Urteil. . . . Und mag sich ein eifriger Zeitungsleser noch so sehr und so lange sträuben, die Meinung des Blattes, das er hält, als die seinige aufzunehmen, es kommen erst Augenblicke, dann Tage und Wochen, in denen es ihm bequem ist, wenn das Journal für ihn denkt, und ist er so weit, dann wird ihm das Denken überhaupt zu mühsam, und er überlässt es ein für allemal seinem gedruckten Orakel. — *Schönbach*.

II. (a) Without translating, paraphrase the following passage in ordinary German prose:

Es ist der Krieg ein roh, gewaltsam Handwerk.
Man kommt nicht aus mit sanften Mitteln, alles
Lässt sich nicht schonen. Wollte man's ergreifen,
Bis sie zu Wien aus vier und zwanzig Uebeln
Das kleinste ausgewählt, man paszte lange!
— Frisch mitten durchgegriffen, das ist besser!
Reisz dann, was mag! — Die Menschen in der Regel
Verstehen sich aufs Flickeln und aufs Stückeln,
Und finden sich in ein verhasztes Müsen
Weit besser als in eine bittere Wahl. — *Schiller*.

(b) Explain in German (1) the use of the uninflected forms *roh, gewaltsam*; (2) the difference between *passen* and *erpassen*; (3) the use of *durchgegriffen*.

(c) Give the first five lines as they would appear in a report introduced by *er sagte*.

(d) Explain in German the meaning of the last two lines.

III. Write fifteen or twenty lines in German upon the plot of some play or novel that you have read.

IV. Translate into German :

One of the most beautiful traits in the character of Frederick the Great was his strict love of justice. Who does not know the story of the windmill at Potsdam, which the king wished to buy of the owner because it stood in his way in the laying out¹ of the park of

¹ Laying out, *die Anlage*.

Sans-Souci? The miller refused steadfastly to sell his property, tho the king offered him a large sum and promised to have another mill built for him. But the obstinate old fellow only answered: "My grandfather built this mill, I inherited it from my father, and my children shall inherit it from me." The king now became impatient and said: "But you know, I suppose, that I might have your mill for nothing, if I wished." "Yes," answered the miller, "if there were no chamber of justice² at Berlin." Pleased at the

² Chamber of justice, *das Kammergericht*.

confidence which the old miller had in the Prussian courts, the king dismissed the man without further words.

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REPORT OF THE COMMITTEE OF SEVEN OF THE AMERICAN HISTORICAL ASSOCIATION

To the Committee on College-Entrance Requirements of the National Educational Association:

The committee making the following recommendations was appointed in 1896 by the American Historical Association to consider the subject of history in the secondary schools and to draw up a scheme of college-entrance requirements in history. Since that time we have been engaged in this work, endeavoring to gather information concerning existing conditions and tendencies of historical instruction, and to make suggestions on the general subject under consideration.¹ In the statement which follows we mark out a system of college-entrance requirements in history without seeking to give all the reasons which seem to us to support the conclusions presented.

IMPORTANT PLACE NOW HELD BY HISTORY

History as a secondary study demands serious attention. The report of the United States Commissioner of Education for 1896-97 shows that there were, at that time, 186,581 pupils in the secondary schools studying history (other than United States history). No statistics have been collected to show the number of students studying the history and government of the United States; but there is good ground for saying that, if such pupils were taken into account, the number of history pupils would be found to exceed two hundred thousand, and perhaps equal, if not exceed, in number those engaged in the study of any other subject save algebra. According to the statistics of the Bureau of Education, the number of pupils studying history (other than United States history) has increased 152 per cent. in the last ten years, a rate of increase below that of only one subject in the curriculum. These simple facts seem to make it plain that college-entrance requirements that are properly based upon the work and tendencies of the secondary schools should include a liberal amount of history among the prescribed and optional studies.

PRINCIPLES OF COLLEGE REQUIREMENTS

In all our consideration of college-entrance requirements in history we have endeavored to bear in mind certain facts and principles which we conceive to be fundamental, and it may be well to state at the outset what

¹ A statement of the grounds upon which these conclusions are based is made in the report of this committee to the American Historical Association. This report is published by Macmillan & Co., 1899, and also appears in the proceedings of the American Historical Association for 1898. Besides discussing the value of history and its place in the curriculum, the report considers the manner of treating different periods of history, and methods of instruction. Articles on the teaching of history in foreign countries and select bibliographies for the use of teachers are also included.

we conceive these facts to be, and upon what main principles we have drawn up the following recommendations. The great majority of secondary schools are primarily not preparatory schools where boys and girls are fitted for college. The curriculum must be prepared for the purpose of developing boys and girls into young men and women, not for the purpose of fitting them to meet college-entrance examinations, or of filling them with certain information which some faculty thinks desirable as a forerunner of college work. Many of the academies, and some of the high schools, can, without much trouble, meet the requirements of a college, however artificial, but the great majority of high schools, and some of the academies, have great difficulty in so doing, and it is an almost impossible task to arrange the program so that pupils can be fitted for more than one institution.¹

We welcome the efforts of the committee of the National Educational Association to simplify and unify college-entrance requirements. But we believe that the first requisite for the successful accomplishment of this task is the recognition of the fact that the great majority of schools are not fitting schools for colleges, and it seems to us that any rigid and inelastic régime which does not take into consideration the fact that schools are working in many different environments and are subject to different limitations and conditions cannot be widely accepted or prove useful for any length of time. We venture to suggest, then, that in an effort to simplify the situation and to relieve the schools from their present burdens, two things are essential: (1) that the fundamental scope and purpose of the secondary schools be regarded; (2) that such elasticity be allowed that schools may fit for college and adapt themselves to local environments and local needs.²

We feel justified, therefore, as students and teachers, in marking out, in a general way, what we think is the best curriculum in history; and we desire to emphasize the thought that history is a peculiarly helpful study in a secondary course which is fashioned with the thought of preparing boys and girls for the duties of daily life and intelligent citizenship. But we do not feel that we should seek to lay down hard and fast college-entrance requirements and ask your committee to declare in favor of an altogether inflexible régime. It seems to us that the time has come when the colleges should recognize the value of history and admit to their lists of requirements a liberal amount of historical work.

¹ We find, for example, in the catalog of a good high school—a school rather large than small, and well equipped with teachers—this typical statement, that a pupil can prepare in that school for one of several universities, but he should know what he intends to do at the beginning of his second year, and that a failure to choose accurately in any one semester involves the loss of a year.

² It does not seem wise, even if it were possible, to outline the same entrance requirements for the University of California, the University of Kansas, the University of North Carolina, Yale, Harvard, Tulane, and a hundred others. If the curriculum is rigid and inflexible, this means that secondary schools everywhere should conform to the same mold, disregard environment, and come under the domination of external force.

CHOICE OF SUBJECTS

We have carefully considered how the general field of history can best be covered, and how much time should be devoted to the work. We cannot recommend a short course in general history in which an effort is made to cover the whole field of the world's progress in a single year's study. Such a general conspectus requires four years' work, if the results are to be thoroly satisfactory; it need hardly be said that three years are better than two, and two years are better than one. But we recommend, if less than four years is given to historical work, that some portion of the world's history be omitted, in order that the portions selected may be studied in a manner likely to produce good pedagogical results. Training in historical thinking and the discipline coming from a careful examination of a limited period—a period large enough, however, to constitute a significant part of the world's development—seem to us more important than obtaining a bird's-eye view of the whole field.

We recommend that the four-years' course include the following blocks or periods of history. Each of these periods has a certain unity and meaning, and they can best be pursued in the order in which they are here set down, which follows the natural chronological sequence.

I. Ancient history, with special reference to Greek and Roman history, and including also a short introductory study of the more ancient nations and the chief events of the early Middle Ages. The period may close with the establishment of the Holy Roman Empire (800), the death of Charlemagne (814), or the Treaty of Verdun (843).

II. Mediæval and modern European history, from the close of the first period to the present time.

III. English history.

IV. American history and civil government.

Each of these periods deserves careful study, and we do not think, as we have already said, that less than four years is sufficient to cover them all in a satisfactory manner. If only three years can be given to historical work, three of these periods can be chosen and one omitted. Such omission seems to us to be wiser than any condensation of the whole. But if it seems best to compress two of the periods into a single year, one of the following plans may be wisely adopted: (*a*) combine English and American history in such a manner that the important principles wrought out in English history and the main facts of English expansion will be taught in connection with American colonial and American political history; (*b*) treat English history in such a way as to include the most important elements of mediæval and modern European history.

RECOMMENDATIONS FOR COLLEGE REQUIREMENTS

For convenience of statement we have adopted in the following recommendations the term "unit," and by one unit we mean either one

year of historical work wherein the study is given five times per week, or two years of historical work wherein the study is given three times per week. We have thought it best to take into consideration the fact that different colleges have now not only different requirements, but also entirely different methods of framing and proposing requirements. It has not seemed wise to outline historical courses on the supposition that all colleges would at once conform to a uniform arrangement.

1. If a college or scientific school has a system of complete options in college-entrance requirements, that is, if it accepts a given number of years' work or units, without prescribing specific subjects of study (as, for example, at Leland Stanford University), we recommend that four units in history be accepted as an equivalent for a like amount of work in other subjects. Likewise, that one, two, or three units in history be accepted.

2. If a college or scientific school requires a list of certain prescribed studies, and also demands additional subjects chosen out of an optional list (as, for example, at Harvard University), we recommend that one unit of history be placed on the list of definitely prescribed studies, and that one, two, or three other units of history be placed among the optional studies.

3. If a college or scientific school has rigid requirements without options (as, for example, at Yale College and the Sheffield Scientific School), we recommend that at least one unit of history be required for entrance.

These recommendations (1, 2, and 3) do not seem to us unreasonable, and we do not believe that their adoption would impose any burden upon colleges or preparatory schools. If the traditional requirements in other subjects need to be diminished in order to allow one unit of history in any régime of rigid requirements, we do not think that such diminution is unwise, because history is now very generally studied, and because the training obtained from historical work is an essential of good secondary education. It will be seen from the statement that follows (under 4) that we do not recommend any particular field or period of history to which a year's study should be given. To constitute this unit any one of the periods or blocks of history previously mentioned can be selected.

4. Where a college has several distinct courses leading to different degrees, and marks out different groups of preparatory study, each group preparing for one of the college courses (as, for example, at the University of Michigan), the use to be made of history requires more detailed exposition. In one of these preparatory courses the ancient languages are given chief attention; in a second, a modern language is substituted for one of the ancient languages; in a third, the chief energy is devoted to natural sciences; in a fourth, main stress is laid upon history and English language and literature. The general recommendations above

given will aid somewhat in outlining preparatory courses in history, where such definite routes for admission to colleges are marked out :

A. We believe that in each preparatory course there should be at least one unit of history. This recommendation means that classical students should have at least one full year of historical work. A course which purports to deal with the "humanities" cannot afford to be without one year's work in a study whose sole theme is humanity. When four years are given to Latin, two or more to Greek, two or three to mathematics, one, or perchance two, to sciences, some room should be found for history, even if the time given to other studies must be diminished. If we take for granted that the great majority of secondary pupils do not go to college, can we declare that they should go out into life with no knowledge of the humanities save that acquired by the study of the Greek and Roman tongues ?

To decide what field of history should be chosen is a matter of considerable difficulty. We believe it desirable that pupils should know the life and thought of Greece and Rome, and the development of their civilization ; that they should study the great facts of European history after the downfall of the Roman empire ; that they should have some knowledge of how England grew to be a great empire, and how English liberty developed ; that they should come to know their own political surroundings by studying American history and government. We hesitate, therefore, to recommend that any one particular field be chosen to the exclusion of the rest, and yet we think that far better educational results can be secured by devoting a year to one period than by attempting to cover the history of the world in that length of time. We believe that it is more important that pupils should acquire knowledge of what history is and how it should be studied, than that they should cover any particular field.

Perhaps it is not impossible in connection with the study of Greek and Latin to pay attention to the growth of Greece and Rome, so that pupils may be led to an appreciation of the character and essential nature of ancient civilization. This is one of the great ends of historical work ; and if the humanities can thus be humanized, there will be less need of prescribing Greek and Roman history as a distinct subject for classical students,¹ and some other historical field may then be chosen. We cannot be sure, however, that such methods of teaching the classics will prevail, and we must content ourselves with recommending one of the four blocks, or periods, which are marked out in the earlier portions of this paper, without designating any particular one.

B. The secondary course, sometimes called the Latin course, in which a modern language takes the place of Greek, presents nearly the same

¹ That the desirability of such method is recognized by many classical teachers is shown, for example, by the paper by Professor Clifford H. Moore on "How to Enrich the Classical Course," published in the *School Review*, September, 1898.

problems as the classical course. It does not afford much time for the study of history, and we recommend that some one of the blocks mentioned above be selected.

C. In the scientific secondary course more opportunity for historical study is often allowed, and here, perhaps, two units of history can be given. One of them, at least, will naturally be a modern field; and yet it may be said that it is highly desirable that scientific pupils should be the study of ancient history obtain something of the culture which is not wrongly supposed to come from the study of classical civilizations.

D. The fourth secondary course, commonly called the English course, should have history for its backbone, inasmuch as it is a study peculiarly capable of being continued thruout the four years, and offering that opportunity for continuous development which the classical pupil attains from the prolonged study of Latin. We strongly advise that sustained effort be devoted to history, in order that this course may have a certain consistency and unity. There are already schools which offer history for four years, and give four full units, consisting substantially of the four blocks we have outlined. If the four full units cannot be given, it may be well to offer history only three times a week in one of the four years. If only three years can be devoted to the study, one of the four blocks must, as we have already said, be omitted, or two fields must be compressed in some such manner as that suggested in the earlier portion of this paper.

The general recommendations under this head may be summed up as follows: (*a*) for the classical course, one unit of history, to consist of one of the four blocks previously mentioned; (*b*) for the Latin course, the same; (*c*) for the scientific course, two units, consisting of any two of the blocks; (*d*) for the English course, three units, consisting of any three of the blocks, or of two blocks and a combination of two others. We strongly recommend that four years be given in this course.

MORE THAN ONE UNIT DESIRABLE

It should be said in conclusion that, in demanding but one unit of history as the minimum requirement for entrance to a college or scientific school, the committee does not wish to be understood as expressing its approval of this amount as an adequate course in history for secondary schools. In this portion of the report we have been obliged to work within the limits of the systems of entrance requirements which now prevail, and to frame recommendations which may be adapted to existing conditions; but we do not believe that a single unit of history constitutes a sufficient course—viewed with reference either to the relative importance of the subject or to the possibility of realizing the aims of his torical instruction within the time that would thus be at the teacher's disposal. While it may not at present be feasible for every college to require more

than one unit of history, the committee believes that two units should constitute the minimum amount offered in any school, and it maintains that a still more extended course in history has claims quite equal to those that may be urged on behalf of any other study in the secondary curriculum.

ENTRANCE EXAMINATIONS

One subject connected with college-entrance requirements has peculiar importance in connection with the study of history, namely, entrance examinations. Higher institutions which admit students on the basis of certificates need have no administrative difficulty in giving large recognition to history as a preparatory subject, but in colleges and universities which can be entered only after passing examinations the problem is somewhat different. The utility of historical study lies not only in the acquisition of certain important facts, but in great measure in its indirect results in training the power of discrimination and judgment; and it will often happen that pupils who have profited largely from their study of history will, especially after two or three years have elapsed, show surprising *lacunæ* in their stores of historical information. While a course in history should be progressive and built steadily upon what has gone before, one stage does not depend so immediately upon the preceding and involve so persistent a review of earlier work as in the case of languages and mathematics, and growth in power of historical thinking is much more difficult to measure than progress in mathematical knowledge or linguistic facility. These difficulties are present, in some degree, even when the candidate is examined on work done in history in the last year of the secondary school, but they become exceedingly serious when the subject has been studied some years before, or when the course in history covers two, three, or four years of the period of secondary instruction.

The remedy, in our opinion, lies, not in the exclusion or unnatural restriction of history as a subject for entrance, but in the reform of methods of examination in history; if the present system of entrance examinations does not—and it generally does not—properly test the qualifications of candidates in history, it is time to consider how it may be changed. Certainly nothing has done more to discredit history as a subject for college entrance than the setting of papers which demand no more preparation than a few weeks' cram. The suggestions which follow are offered in the hope, not that they will afford a final solution of the problem, but that they may prove helpful in bringing about a more just and adequate system of examinations in history. Their complete adoption will naturally involve a larger allotment of time to history than is now given in examination schedules, and impose a heavier burden upon those to whose lot the reading of papers in history falls, but it is not likely that the demands of time and energy will prove greater than in other well-recognized admission subjects, and it is not unreasonable

to expect college authorities to make suitable provision in these regards.

The main element in entrance examinations in history must probably continue to be the written paper, but it should be set with the idea of testing, to some extent, the candidate's ability to use historical material, as well as his knowledge of important facts. The information questions should not demand the simple reproduction of the statements of the text, but should be framed, in large measure, so as to require the grouping of facts in a different form from that followed in the books recommended for preparation. There should also be questions involving some power of discrimination and some use of legitimate comparison on the part of the candidate. It is not expected that skill in utilizing historical material will be present in a high degree in the candidate for admission to college, but the student who has learned how to handle books and extract information from them in the course of his secondary studies has the right and the ability to make this count for something toward college entrance. As suitable tests may be suggested: comment on carefully chosen brief extracts from simple sources or modern works; analysis or discussion of more extended passages, supplemented, perhaps, by outline maps or concrete illustrations—anything, in short, which will show the student's capacity for taking up a fresh question in a way that indicates some development of the historical sense. Naturally, attainments in this direction will be expected chiefly of those who present history as an additional option.

To many these tests will appear sufficient, but it must always be borne in mind that a written paper, even when the questions have been prepared with great care, cannot yield such decisive results in history as it can, for example, in a subject like English composition. The examiner should always have an opportunity, particularly in doubtful cases, of supplementing by other means the information gained from the paper. One excellent adjunct is the submission by the candidate of written work done in connection with his study of history in school. This may include notebooks, abstracts of reading, and prepared papers—none of which, however, should be accepted without proper guarantee of authenticity and independent preparation. Another supplementary test, which is largely used in European examinations, and has commended itself to the experience of many American examiners, consists of a brief oral conference with the candidate. This should be quite informal in character, and should aim to discover, if possible, something concerning the personality of the candidate and the nature of his historical training, rather than to elicit brief answers to a few arbitrarily chosen questions.

COURSES

FOUR-YEARS' COURSE IN HISTORY

First year — Ancient history to 800 A. D.

Second year — Mediæval and modern European history.

Third year — English history.

Fourth year — American history and civil government.

THREE-YEARS' COURSE IN HISTORY

A

Any three of the above blocks. This plan seems to the committee better than any one of the following :

B

First or second year — Ancient history.

Second or third year — English history, with special reference to the chief events in the history of continental Europe.

Third or fourth year — American history or civil government.

C

First or second year — Ancient history.

Second or third year — Mediæval and modern European history.

Third or fourth year — American history, with a consideration of the chief events in the history of England.

D

First year — Ancient history.

Second year — English history, with reference to events in later mediæval history (three times per week).

Third year — English history, with reference to the chief events in modern European history (three times per week).

Fourth year — American history and civil government.

E

First year — Ancient history.

Second year — Mediæval and modern European history.

Third year — American history, with special reference to development of English political principles and English expansion in connection with American colonial history (three times per week).

Fourth year — American history and civil government (three times per week).

ANDREW C. McLAUGHLIN, *Chairman*,
Professor of American History in the University of
Michigan.

HERBERT B. ADAMS,
Professor of American and Institutional History in
the Johns Hopkins University.

GEORGE L. FOX,
Principal of the Hopkins Grammar School, New
Haven, Conn.

ALBERT BUSHNELL HART,
Professor of History in Harvard University.

CHARLES H. HASKINS,
Professor of European History in the University
of Wisconsin.

LUCY M. SALMON,
Professor of History in Vassar College.

H. MORSE STEPHENS,
Professor of Modern European History in Cornell
University.

*REPORT OF THE COMMITTEE OF THE CHICAGO SECTION
OF THE AMERICAN MATHEMATICAL SOCIETY*

Dr. A. F. Nightingale, Chairman.

SIR: In compliance with a request from you, the Chicago Section of the American Mathematical Society, at its session in December, 1898, appointed a committee to co-operate with the committee of the National Educational Association of which you are chairman, by preparing for the use of the latter committee a report "on the scope, aim, and place of these studies (mathematics) in the secondary schools and in preparation for college, with model courses in algebra, geometry (plane and solid), and trigonometry, with methods to be used, time to be consumed, etc., etc." This action was afterward approved by the Council of the Society.

In order that the various phases of instruction in mathematics might be more fully represented, it was decided to associate with the members of the American Mathematical Society upon the committee several persons not members of the society, these persons to have equal voice and vote with the members of the society in the proceedings of the committee, but to be designated as associate members of the committee. The associate members are Messrs. Lyon and Schobinger.

The committee held several sessions in December, at which the various problems presenting themselves were discussed, and a subcommittee was appointed to prepare a draft of a report. This was done, and a copy sent to each member of the committee. These drafts were returned with criticisms and amendments, upon the basis of which a second draft was prepared by the subcommittee and a copy sent to each member of the committee. The comments hereupon were discussed by those members of the committee present at the meeting of the Chicago Section of the American Mathematical Society at Evanston, April 1, 1899, and the subcommittee was directed to prepare a third and final draft, which is submitted herewith. Since the report is submitted to you directly, and not to the society, the individuals concurring in the report are alone responsible for its contents.

Very respectfully,

J. W. A. YOUNG,

Chairman.

PRELIMINARY REMARKS

1. *Terms used.*—The term "secondary school" is used to designate, generically, all schools which have courses fitting for college. The term includes high schools, academies, and private college-preparatory schools. The course of study in the secondary school proper is assumed to cover four years.

The term "the grades" is used to designate the work prior to the secondary school. It is assumed to cover eight years. The work of each of these years is sometimes alluded to as a "grade," the grades being numbered in order from one to eight. The child is assumed to enter the first grade at the age of six years.

2. *Scope of report.*—In determining the phases of topics to be discussed and the nature of its detailed suggestions, the committee has been governed by the condition of instruction today, rather than the absolute

importance in themselves of the topics selected for remark. It was found impracticable to discuss the work in mathematics in the secondary school without giving quite a little consideration to the closely related antecedent work in the grades.

3. *Scope of mathematical work.*—At its sessions in December the following resolutions were adopted by the committee:

(a) That before the pupils reach the secondary school the work in mathematics should be the same for all.

(b) That in the secondary school the standard course in mathematics should be sufficient to admit to college; that this course should be required of all pupils, and that the instruction in this course should be the same for all pupils.

(c) That the main emphasis should be given to such topics as are useful in later work.

(d) That the best place for a topic in the course of study is where it is most closely related to other topics; that there should be applications of algebra, geometry, and arithmetic to each other, and to various sciences and the practical affairs of life.

CONCERNING METHODS

Various methods of teaching mathematics are in vogue. The good teacher will not tie himself to any one method, but, on occasion, will make use of the good features of every one. The committee recommends no single method above all others, but whatever method may be used, the aim should always be to cultivate independent thinking on the part of the pupil. A method which encourages, or even permits, rote work, or mechanical manipulations, is radically wrong. The value of the study of mathematics cannot be realized, not one of its objects attained, unless the student himself thinks, produces. *Not to learn proofs, but to prove*, must be his task. This idea should dominate the instruction from the very beginning. The independent work should not be left to the close; not to the closing years, nor to the close of the subject in hand, nor to the close of the chapter, nor even to the close of the first lesson in arithmetic.

GENERAL METHODIC SUGGESTIONS

1. *Steps.*—The importance of distinguishing the various steps of a process, and of taking them *one at a time*, can hardly be overemphasized. This is sometimes irksome to the pupil, and the consequent attempts to take several steps at once are responsible for much of some pupils' lack of success in mathematics.

2. *Oral work.*—In all the subjects of mathematics much stress should be laid on oral solution of *many easy* and carefully graded exercises. Principles are just as effectually applied in these as in more complicated exercises, and the application is more readily seen.

3. *Testing results.*—The pupil should be taught to test the accuracy of his results by applying a check whenever this is possible, and before completing any topic he should have acquired sufficient facility in checking his work against errors, to rely with confidence upon the correctness of his own results, independently of corroboration by the teacher or a printed answer. Often a rough estimate of the probable character of the result will enable the pupil to detect a glaring error, without the use of a more detailed check. Written exercises should by no means all have results of a simple form, since pupils are very apt to fall into the habit of thinking that the result *must* be simple to be correct.

4. *Translation.*—Mathematics has a language of its own. The teacher must be unwearied in his endeavors to teach his pupils to speak the sentences of the mathematical language with intelligence, and he must be ever on the alert to check the tendency to use them as meaningless jargon. Here, as in other languages, one who has made some progress shows that he has intelligent control of the language by uttering consistent sentences conveying ideas. Ability to think *in* the language is one of the ends aimed at, but in the language of mathematics this can be attained only by much translating; the beginner must assure himself that he understands the mathematical sentence, by giving its equivalent in ordinary English; and, what is more difficult, must be able to clothe in mathematical symbols thoughts expressed in English.

5. *Different presentations.*—In the fundamentals and in the beginning of any subject the committee is decidedly of opinion that one set of definitions and style of presentation should be strictly adhered to. After a time (and still adhering to the one style of treatment adopted) the presentation by the pupils of other proofs which they may have found for the same proposition, or of different methods of attaining the result of some exercise, and the discussion of these in class, is of great value. More may often be gained by proving one proposition in three different ways than by proving three propositions in the same way. This practice should, however, be introduced gradually, great care being taken to avoid confusion; and its use should be much increased as the pupils gain a firm grasp of the subject.

Definitions, tho developed in class as needed, should not be left in an inaccurate form, nor inconsistent with the analogous definitions of later mathematics. Tho in higher mathematics the definitions of the elementary subjects may be generalized, it should not be necessary to overturn them. (E. g., the circle should be defined as a curve, not as a portion of a plane.)

6. *Neatness and accuracy.*—Papers written in a slovenly manner, slipshod work, half-guessing at results, and artificial juggling with the quantities involved, are far too frequently found. The difficulty can be met only by persistent training, from the very beginning of mathematical

instruction, in neatness and accuracy. In particular, the committee suggests the use of numerous short written exercises, in which the pupil is not hurried for time by the amount assigned, and in which the requirement is made that what he hands in must be accurate and neatly arranged.

7. *Synopses*.—At the close of each chapter or topic a synopsis in schematic form of its definitions, methods, and results should be made. The object of this is to correlate the material and to secure that view of the topic as a whole which is too likely to be obscured by the details of the first study and the working of exercises. This will serve also to bring clearly before the pupils that the solution of exercises is not an end in itself, but is a means of impressing a connected theory.

8. *Correlation of work*.—The subjects arithmetic, geometry, algebra should be treated as branches of one whole—mathematics—and each of these subjects freely applied in illustrating and broadening the others.

9. *Independent thinking*.—Whatever specific method or methods may be used in conducting the instruction, the controlling principle must be that the pupil is to be kept thinking for himself. The learning of proofs, even tho it be done understandingly, is not sufficient. *Not learning proofs, but proving*, should be the pupil's principal activity in the study of mathematics.

ARITHMETIC

The instruction in arithmetic, except as it would properly come up in connection with geometry, algebra, and trigonometry, thus adding to their interest and usefulness, should be confined to the following topics:

1. The four fundamental processes with integers, all the computations being tested.

2. Factorization of all numbers up to 100, and some above 100, exponents being used. The results not to be derived by rule, but from the multiplication table.

3. Easy work by short rule in L. C. M. and H. C. D.; to be tested by seeing whether the quotients obtained by dividing L. C. M. by the numbers are relatively prime, and whether the numbers divided by the H. C. D. also give relatively prime results.

4. Simple work in denominate numbers, only the measures generally in vogue being used.

5. Simple operations in fractions, geometric, i. e., graphic illustrations being given, and fractions with large terms being, as a rule, avoided. Application of simple fractions to making rough estimates.

Much stress on cancellation; actual multiplication or division being performed by cancellation wherever possible.

6. United States money. The commoner measures of the metric system; the measures being actually constructed, and measurements

performed with them. There should also be rough comparison with our own measures.

7. Decimals : the four rules, with especial attention to the correct placing of the decimal point.

8. Simple problems in percentage; the fact being emphasized that "per cent." means hundredths, or a fraction with 100 for denominator. The pupil should be trained always first to ask himself of what the per cent. is to be taken. This (the determination of the base) is largely a matter of use of language. Making use of "aliquot parts" (where the per cent. can easily be converted into such) connects per cent. with fractions and helps to prevent rote methods.

9. Examples in simple interest where the time and rate are given.

10. The use of the "method of analysis" for the solution of problems in simple and compound proportion, and in interest, without ever introducing the terminology and machinery usual in proportion.¹

11. The concrete exemplification of the simpler geometric notions and facts should begin with the beginning of the arithmetic and be carried on in connection with this subject and with drawing during the first six years. By the close of this time the leading facts and theorems of geometry, plane and solid, should have become familiar by means of concrete illustrations and computations (mensuration). The pupil will now, perhaps, himself begin to feel the need of *proof* rather than illustrations (or will be led to feel it by the teacher), and at the beginning of the seventh year this transition may be made, and the developing of proofs begun carefully, gradually, and as informally as possible. In the seventh year the work in arithmetic may permit the informal beginning (as abbreviations) of literal arithmetic. The committee recommends that all topics not mentioned be omitted from the instruction in arithmetic as such — in some cases to be taken up later (in algebra, geometry, or trigonometry), in others to be omitted altogether.

In all the instruction in arithmetic there should be insistence upon neatness and upon accuracy; much oral work (object: correct thinking) and frequent short oral drills (object: quickness and accuracy); the testing

¹ As sufficient exemplification of the method we give the following: If 48 men can do a piece of work in 12 days, working 10 hours a day, in how many days of 8 hours each would 40 men accomplish the same work?

Arrangement:	Men	Days	Hours
	48	12	10
	40	?	8

Oral explanation: We seek days, so we begin with days. If 48 men accomplish the work in 12 days, 1 man would have to work 48 times as many days as 48 men, and 40 men $\frac{48}{40}$ as many as 1 man. That is, working 10 hours per day. To accomplish it by working 1 hour per day, it would take ten times as many days as when working 10 hours per day, and to do it by working 8 hours per day, $\frac{10}{8}$ as many days as when working 1 hour per day. We have now considered all the data, and, performing the multiplication, we obtain the result.

The written work is by cancellation. Nothing is written down except the arrangement and the following equation:

$$12 \cdot 48 \cdot \frac{10}{8} \cdot \frac{1}{40} = 18.$$

This method makes compound proportion correspondingly easy, and dispenses entirely with the confusing verbiage of the subject. The work is precisely the same, no matter which of the quantities is unknown.

of computations, both by rough estimates and exact tests; avoidance of technical terms and formal rules, save where absolutely necessary and when the need is felt by the pupil; ideas before definitions or rules.

ALGEBRA

While not recommending any radical alterations in the subject-matter of algebra, as usually presented in our best schools,¹ the committee desires to emphasize the following points:

1. *The arithmetical side of algebra.*—Computations with numbers should be constantly introduced, problems with literal quantities being worked out or verified with numerical data also. The processes of arithmetic, both oral and written, should not be allowed to fall into disuse, but facility therein should rather be increased. At the same time, the pupil should understand the value of algebra in abridging or simplifying computation with numbers, or in proving the correctness of rules of computation, and should understand clearly that the devices of mathematics (especially algebra) have the purpose of enabling us *not* to compute; and that actual computations are usually not to be made so long as they can be avoided; that cancellation is to be resorted to wherever possible; and that to obtain an expression in factored form, or in any form in which operations are *indicated*, is a distinct advantage, not to be surrendered by needlessly performing the operations. Some of the topics omitted from arithmetic should be taken up at appropriate places in the work of algebra.

2. *The equational side of algebra.*—The equation should be made from the very beginning. Very simple problems in words leading to equations can be given at the outset.

¹The report of 1896-97 of the Commissioner of Education contains (pp. 457-613) a collation of the entrance requirements of 432 institutions having a course leading to the degree of A.B. Of these institutions, 346 specify arithmetic as an entrance requirement, the others probably regard it as implied in the requirement of algebra. Algebra is required in 412 institutions to the following amounts:

To quadratics	-	-	-	-	37	institutions
Including quadratics	-	-	-	-	74	"
Amount not specified	-	-	-	-	201	"
					312	"

The other requirements are as follows:

Plane geometry in	-	-	-	-	294	institutions
Solid geometry in	-	-	-	-	93	"
Trigonometry in	-	-	-	-	4	"
Conic sections in	-	-	-	-	2	"

Upon looking over the detailed statement of the requirements for each institution, it appears that the better institutions require arithmetic (explicitly or tacitly), algebra including quadratics, and plane geometry.

Solid geometry is required by many institutions of high rank, and not required by others of equally high rank. The territorial distribution of the institutions requiring solid geometry is interesting.

Division	Total number of institutions	Number requiring solid geometry	
North Atlantic	76	5	6.6 per cent.
South Atlantic	61	4	6.6 "
North Central	183	68	37.1 "
South Central	75	8	10.7 "
Western	37	8	21.6 "
Total	432	93	21.5 per cent.

3. *Algebraic translation.*—What has been said as to the value and necessity of translation in general applies with special force to algebra. Here the danger of mechanical, or even haphazard, manipulation of symbols is perhaps the greatest, and it must be especially guarded against by care that the meaning of the symbols, and the reason for the operations, be always clear in the pupil's mind. This can be done to a large extent by requiring the pupil to give readily and clearly in words the meaning of the formulæ and equations. On the other hand, the danger is exaggerated by the use of complicated and long examples, which seem to emphasize operative skill merely, and make that appear as the main object sought. Better many short examples with the principles always clearly apprehended than a few complicated ones with the principle obscured.

(Skill in manipulating long and intricate algebraic expressions should also be attained, and for this purpose the use of long and hard examples, after the principles and methods of a topic are clearly understood, is indispensable.)

4. *Topics to be emphasized.*—The following topics require especially careful treatment :

The meaning and use of exponents, positive, negative, and fractional ; the handling of the simpler surds ; the distinction between identical equations and equations of condition ; the character of the roots of the quadratic equation as determined by inspection ; the connection between the roots and the coefficients of the quadratic ; the solution of equations by factoring ; and the making of the algebraic statements for problems given in words.

5. *Secondary-school algebra and college algebra.*—It should be the aim of the secondary school to avoid taking up any of the topics which are customarily treated in college algebra, but rather to secure as thoro a mastery as possible of those topics which the college presupposes. It is recommended that schools which have hitherto taken up topics anticipatory of college algebra devote the time gained by omitting them to a more thoro study of the topics of the previous head.

The progressions, arithmetical and geometric (with applications to interest, simple and compound), and the theory and use of logarithms, might well, so far as the nature and difficulties of the subject are concerned, be included in the secondary-school course, but as they are required for entrance by very few colleges, and are accordingly taken up in connection with college algebra, the committee recommends that they be omitted from the secondary-school course, in the interests of economy of energy, and to avoid duplication of work ; until such time at least as, by action on the part of the colleges, these topics (or any of them) are relinquished as parts of college algebra, and made parts of the entrance requirements.

These remarks relate solely to the work in algebra *required of all pupils* in the secondary school. It is not meant to discourage the offering of more advanced courses in algebra ("college algebra") or in trigonometry to such pupils as may wish to take them. As these pupils will often desire that these advanced courses in the secondary school should be accepted by some college as the equivalent of college work, the scope and character of the work will usually be determined by the requirements of the college in question.

DEMONSTRATIVE GEOMETRY

The instruction in demonstrative geometry should not begin with a mass of definitions and axioms. All definitions should be introduced when needed, and not earlier; and, as a rule, only after the teacher has, by suitable examples and problems, familiarized the pupil to some extent with the notion in question, and the pupil himself feels the need of some convenient term by which to designate it, or the need of a precise agreement as to the meaning to be given to a term already used vaguely in common parlance.

Care should be taken to select for the early instruction such propositions as are less difficult to understand because less nearly self-evident; those that are more nearly self-evident being reserved for a later stage. Such propositions as, "All straight angles are equal," "All right angles are equal," should be omitted altogether.

Oral proofs (i. e., proofs in which nothing but the figure is placed upon the board) may well be used in geometry. Later even the figure may often be omitted. After the pupil has had some practice of this sort with familiar proofs, he will be able to work out the proofs of simple new propositions, with the figures only before him, and even if no figure, carrying the whole proof in the mind.

Frequent drills in seeing relations in a given figure (angles equal, supplementary; lines parallel, perpendicular; triangles equal, similar; etc., etc.) as a general exercise, without having any specific theorem proposed for proof, are also helpful. The teacher should prepare the figure, at first simple and anticipating coming propositions; later more complicated and unlike any of the figures of the text.

As to subject-matter, the propositions taken up may be divided into two classes: *fundamental* propositions and *exercises*. The fundamental propositions together constitute the nucleus or skeleton of the subject, being that minimum which all pupils alike should know. They should be reduced to as small a compass as possible. All other propositions constitute the class we have called *exercises*. The proofs of the exercises are to be based upon the fundamental propositions. Every course in geometry should invariably include all the fundamental propositions and a large number of exercises; the selection of the latter may vary from

year to year. It is not at all implied here that the proofs of the fundamental propositions may not also be obtained as original exercises.

What has been said applies to both plane and solid geometry. A word may be added as to the use of models in solid geometry. While not wishing to undervalue models which are presented to the pupils ready-made, the committee believes that, as a rule, the pupils gain more by constructing their own models, and that this can be done very easily in a sufficient number of theorems. Some pieces of cardboard, darning needles, and thread constitute apparatus sufficient for making models of a large class of propositions. Another large class of models can be cut out of potatoes. A broomstick furnishes all the models needed for the cylinder. An orange will do fairly well for the sphere, but a small slated globe in the hand of each pupil is better.

The attempt has been successfully made to teach geometry by interweaving solid and plane geometry from the outset. While the committee is not prepared to commend this, there are advantages to be gained by beginning solid geometry before plane geometry is completed. In the opinion of the committee, the restriction of the study of geometry in many secondary schools to plane geometry is unfortunate, and it is desirable that the school course and the college-entrance requirement in geometry should cover both plane and solid geometry.

The notions and results of modern geometry may be used with advantage, but only so far as they actually simplify or make clearer the topic in hand.

The work in demonstrative geometry should be accompanied by construction and measurement. E. g., in connection with similar triangles, pupils may measure distance of some inaccessible object, simply measuring base line and two angles, and then drawing to scale. Of course, the work is crude, but this form of exercise opens a new window in the child's mind.

In the work in geometry, arithmetic, and also algebra (so far as this subject has been developed), should be frequently applied.

TRIGONOMETRY

Trigonometry is at present usually not required in the school curriculum; to prepare pupils for admission to certain technical schools and colleges, it is sometimes taught in the schools. When thus taught, the subject-matter taken up is determined by the requirements of the institutions in preparation for which it is taught.

There is, however, no intrinsic reason why the elements of plane trigonometry should not be an integral part of the school course in mathematics; it can be developed well in continuation of algebra and plane geometry, and is a fitting sequel to them. The matter should be restricted to that needed for the solution of plane triangles — numerous, but simple

applications to the determination of heights and distances should be made.

To avoid duplication of work, the introduction of plane trigonometry into the school course (like that of certain portions of algebra mentioned above) should be an action of school and college jointly.

The trigonometric functions should be defined as ratios, and the whole treatment should be based upon the ratio definitions exclusively.

Before logarithmic tables are introduced, sufficient training should have been given in the solution of problems by means of the natural functions to make the pupils regard these as the real functions; $\log \sin.$, $\log \cos.$, etc., appearing merely as tools.

The object of a logarithmic table is to abridge computations. Those tables are accordingly to be preferred which furnish such aids to interpolation that the value sought may be read off quickly with the desired degree of accuracy and without side computations.

DISTRIBUTION

I. IN THE GRADES

The committee believes that the work in arithmetic outlined by it can be completed in the seventh grade, and that in this grade half the time can be given to demonstrative geometry. In all the preceding grades concrete geometry should be interwoven with arithmetic and with drawing. The transition to demonstrative geometry will thus not be abrupt, but will find the pupil prepared for it. The introduction of demonstrations into the concrete work should be gradual and informal; there should be much demonstration before the machinery and technical terminology of demonstrations are introduced. In the eighth grade demonstrative geometry would continue to occupy half the time, and the other half would be devoted to the beginning of algebra. This should be a natural growth of the arithmetic; the use of letters to stand for numbers may be introduced even earlier in formulating rules; as, "The area of a rectangle is equal to the length times the breadth," $A = LB$. The equation with one unknown quantity may also be introduced informally as occasion may arise. Under favorable circumstances the following ground could perhaps be covered in the grammar grades:

Geometry. — Lines, angles, triangles, parallelograms, elements of the circle.

Algebra. — The four fundamental operations with positive and negative numbers; simple cases of factoring under multiplication; simple equations with one unknown, and problems leading to such equations.

In the work in these subjects and in their further development in the secondary school, numerical applications of the results should be made continually. These applications should lead to computations sufficiently difficult to keep in practice the facility in computation gained

in arithmetic, and to increase it. Stress should be laid on the simplifications in computations which may often be made by the literal notation of algebra.

In suggesting this course of study for the grammar grade, the committee realizes that in many places it would be impracticable to adopt the suggestions at once as a whole. In fact, under some circumstances the committee would not encourage, but would actually discourage, the immediate and complete adoption of its suggestions. On the other hand, in cases where some (perhaps a large part) of the suggestions of the committee are already in force, and where the corps of teachers is prepared to adapt its work to the new plan, there would be no obstacle, but indeed a distinct gain, in putting the committee's suggestions as a whole into immediate operation. The committee believes that the suggestions made (followed, if need be, gradually) are generally feasible.

The study of demonstrative geometry should in all cases be begun before that of algebra. Geometry is less abstract, less artificial, lends itself less readily to mere mechanical manipulations, and is more easily illustrated by concrete and familiar examples than algebra.

II. IN THE SECONDARY SCHOOL

The great desideratum for the distribution of mathematics in the secondary school is that it should be studied thruout each of the four years of the course. It is not meant by this that more time should be given to mathematics, but that this time should be distributed over the entire secondary-school course. The committee recommends no specific distribution over the four years of the hours now given to mathematics, but simply the general rule that there be work in mathematics required of all thruout the course, and that in no year less than two hours weekly be given to mathematics during the whole year.

If in any school it is altogether impracticable to take up mathematics in each of the four years, the state of affairs is to be deplored. If a year *must* be left free from mathematics, the committee recommends that it be the second or the first year.

The distribution of the subject-matter over the various years will be influenced by the distribution of the hours. The same general principles would, however, govern in all cases; of these are:

1. The study of geometry should be begun before that of algebra. Reasons for this have already been indicated.

2. When algebra has been begun, the two subjects should be carried on simultaneously in each year of the remainder of the four years. By simultaneously is meant simply in the same year. It is not necessary that the hours of instruction be given to each alternately. The division may even be the first half year to one (geometry) and the second half year to the other (algebra), but this arrangement is not to be preferred.

3. The work of the fourth year should include a review of all of the previous work of the course, with the aim to extend, broaden, deepen, and correlate what has already been done.

4. The instruction in mathematics of each class or section of a class should be, as far as practicable, in the hands of the same instructor for at least two years. It is still more important that, instead of trying to plan the assignment of work so that certain teachers do "first-year work," others "second-year work," etc., year after year, the aim should be to plan the assignment so that each teacher habitually teaches all the mathematical subjects, tho not necessarily all in one year.

5. Under no circumstances should an instructor who has not qualified himself especially to teach mathematics be intrusted with a class in mathematics simply because he may have a vacant hour which must be filled up.

Thruout the course (and especially in the last year) the more the subjects can be interwoven, and made to illustrate and support each other, the better. The teacher should not hesitate to introduce a geometric illustration or a geometric truth into algebra, nor to avail himself in algebra of apt occasions for recalling previous geometric theorems, or developing and discussing new ones. Quite similarly, algebraic proofs and methods should be freely used in geometry, and, as need arises, new algebraic results established. It is quite wrong to teach geometry and algebra (and arithmetic) in the high school as subjects so essentially different that the purity of the one would be impaired by the use of the methods and results of the other.

PREPARATION OF TEACHERS

The preparation of teachers for high-school work should include a good college course, with special attention to mathematics, either by electives during the course or by some graduate study. The minimum attainment in mathematics should include analytic geometry, a first course in the calculus, and the elements of the theory of equations (including determinants).

The committee regards it as desirable that the teacher should have paid some attention, under guidance, to the pedagogy of mathematics (problems, means, and methods of instruction, if practicable, seeing actual teaching and discussing it afterward), before beginning his own teaching. Still more important is it that his first teaching should be under the careful supervision of an experienced teacher of mathematics. If possible, his first year or two of service should be explicitly and actually under the direction and guidance of older teachers. Perhaps each beginner may be assigned by his principal to some specific teacher of experience and tact, for supervision and counsel. The relation will be more or less formal, under varying circumstances; but it should always be actual and effective, never merely nominal; it should involve personal consultation, mutual class-room visits, friendly, careful advice.

Much can be accomplished in this way. At present young teachers of no experience, having no pedagogic preparation, are often put into full charge of classes, and receive no assistance, no advice, no encouragement from their more experienced colleagues. They have as model only some recollections of their impressions (as pupils) of the teaching which they received. They profit as best they can by their own experience, and learn from their own mistakes. Some never appreciate their shortcomings or how to remedy them ; even for the best it is a devious and painful path to excellence, which might be shortened and eased by the judicious counsel of one who had traversed the path himself.

In institutions where there are several teachers of mathematics it would be well for them to meet stately for the discussion of questions of local administration, of pedagogy, of mathematical topics ; perhaps the systematic study together of some mathematical study could be undertaken. (Among the suitable subjects for such study are the following : modern synthetic geometry, analytic geometry, the differential and integral calculus, determinants, the theory of equations, analytic mechanics, the history of mathematics.)

It is very desirable that the teacher be making year by year new acquisitions of mathematical knowledge.

CORRELATION OF WORK

Mathematics is unique in the extent to which it builds on previous work. Hence secondary-school work should be correlated as closely as possible both with grade work and with college work. The division of the work in mathematics into three portions, carried on in different institutions (grades, secondary-school, college) differing in management, methods, and aims, and with teachers differing radically in type of preparation, causes a great waste of teaching energy. Much can be done to diminish this waste by close relations between the teachers of the three divisions, and the comparison of results and adaptation of work to mutual needs. The relationship may be official or unofficial, formal supervision or friendly suggestion ; it should, however, never be a mere form, but a cordial co-operation for strengthening and unifying the work in mathematics in grades, secondary schools, and colleges.

LIBRARY

Every secondary school should have for the use of the pupils, and especially of the teachers, a carefully selected library of reference-books in mathematics (standard elementary texts, histories, tables, books of problems and recreations, and advanced mathematical works suited to the needs of the teachers). Measuring instruments should also be provided.

SUMMARY OF PRINCIPAL CONCLUSIONS

The most important of the conclusions which were reached by the committee are the following :

1. To the close of the secondary-school course the required work in mathematics should be the same for all pupils.
2. The formal instruction in arithmetic as such should terminate with the close of the seventh grade.
3. Concrete geometry should be a part of the work in arithmetic and drawing in the first six grades.
4. One-half of the time allotted to mathematics in the seventh grade should be given to the beginning of demonstrative geometry.
5. In the eighth grade the time allotted to mathematics should be divided equally between demonstrative geometry and the beginning of algebra.
6. In the secondary school, work in mathematics should be required of all pupils thruout each of the four years of the course.
7. Wherever, from local conditions, it is necessary to defer the beginning of geometry and algebra to the secondary school, here, likewise, geometry should be begun before algebra.
8. When once begun, the subjects of geometry and algebra should be developed simultaneously, in so far, at least, that both geometry and algebra should be studied in each of the four years of the secondary-school course.
9. The unity of the work in mathematics is emphasized, and the correlation and interapplication of its different parts recommended.
10. The instruction should have as its chief aim the cultivation of independent and correct thinking on the part of the pupil.
11. The importance of thoro preparation for teachers, both in mathematical attainments and in the art of teaching, is emphasized.

J. W. A. YOUNG, *Chairman*,

Assistant Professor of Mathematical Pedagogy in the University of Chicago.

J. J. SCHOBINGER, *Secretary*,

Principal of the Harvard School, Chicago.

ELLERY W. DAVIS,

Professor of Mathematics in the University of Nebraska.

THOMAS F. HOLGATE,

Professor of Applied Mathematics in Northwestern University

L. S. HULBURT,

Collegiate Professor of Mathematics in Johns Hopkins University.

- C. W. LYON, JR.,
Principal of Grammar School No. 78 (formerly Professor of
Mathematics in the Boys' High School), Brooklyn, N. Y.
- H. B. NEWSON,
Associate Professor of Mathematics in Kansas State Univer-
sity.
- W. F. OSGOOD,
Assistant Professor of Mathematics in Harvard University.
- JAMES BYRNIE SHAW,
Department of Mathematics in Michigan Military Academy.
- B. M. WALKER,
Professor of Mathematics in the Mississippi Agricultural and
Mechanical College.

SCIENCE IN THE GRADES

"Nature study" is hard to define, as it has been made to include a very miscellaneous collection of observations. Its purpose is to bring young pupils into direct contact with nature. Its chief failure has been due to the fact that this observation of nature has been often interpreted to mean exercises which are of no significance, which mean nothing when done, which are really dead mechanical work. The failure to present things of real importance arises from the fact that the teachers do not have sufficient knowledge to distinguish them. Another danger which is constantly confronting nature study is the tendency to make it a wildly imaginative and emotional subject. When a very young pupil is being trained to observe, the facts must be made to glow with interest, but not at the expense of truth or of training in the scientific habit of mind.

As one of the first tendencies that exhibit themselves in children is interest in natural phenomena, it seems natural to take advantage of this interest in the very earliest period of formal education. When observational work is lacking, and the whole contact is with conventional forms of training, the interest in observing natural phenomena fades away, and very few pupils are able to survive such treatment and retain the early impulse toward nature.

To keep the "tentacles of inquiry" functional, if not to develop them, at least two exercises in nature study each week should be provided thruout the entire pre-high-school period. Numerous sciences should be made to contribute a great variety of material, and no science should be presented in an organized form. The most available material should be selected, without any reference to scientific sequence. The material should be obvious (entering into the experience of the pupils), important, and interesting. It should be suggested by the observed interests of the pupils rather than by some pedagogical theory. It should be deliberately varied and fragmentary, and should result in that miscellaneous collection of impressions which comes to an untrained but interested observer, without any definite organization. The knowledge of the wide-awake country boy who lives out of doors is probably the best illustration of the kind of knowledge nature study is expected to bring—a magnificent background of experience for the formal organization of the sciences in secondary-school and college courses.

REPORT OF THE COMMITTEE ON PHYSICAL GEOGRAPHY

PRELIMINARY

Augustus F. Nightingale, Ph.D., Chairman of the Committee on College-Entrance Requirements of the National Educational Association:

I have the honor to submit the following as the report of the Subcommittee on Physical Geography, appointed under the auspices of the National Educational Association:

On February 24 I received a letter from Professor Charles S. Palmer, corresponding secretary of the Committee on Science of the National Educational Association, requesting me to assume the functions of chairman of the Subcommittee on Physical Geography, and formulate a final report to be submitted to you, in view of the fact that Professor Albert P. Brigham, who had been appointed chairman of that subcommittee, had departed for Europe in the hope of restoring his impaired health. Altho somewhat doubtful as to the legality of my appointment as chairman, I deemed it best to comply with the request of Professor Palmer.

At that late date it was, of course, impracticable to make arrangements for a meeting of the subcommittee. A preliminary report had been agreed upon at a meeting attended by five members of the subcommittee, in Springfield, Mass., in July, 1898. It was believed that the views expressed in that preliminary report would be in the main approved by other members of the subcommittee, most of whom had expressed their opinions more or less fully in correspondence with Professor Brigham. It seemed to me, accordingly, that the best course practicable was to submit as a final report that preliminary report, with such notes or appendices as might be suggested by correspondence with other members of the committee, or by my own reflections upon the subjects of the report. I accordingly addressed a letter to each member of the subcommittee, whether present at the Springfield meeting or absent therefrom, excepting two members who were known to be out of the country, informing them of the plan adopted, and requesting them to communicate to me immediately any suggestions they might deem important as to notes or appendices which should be added to the preliminary report. A copy of that report was transmitted with the letter to each member of the subcommittee. In addition to the members named in the preliminary report, a copy of the letter was sent to George R. Twiss, head science teacher, Central High School, Cleveland, O., who had been appointed as a representative of the North Central Association, but

whose name had not been received by Professor Brigham in season for him to be invited to the meeting at Springfield in July, 1898. The correspondence indicates that the preliminary report may be regarded as expressing substantially the views of all, or nearly all, the members of the subcommittee, altho there is, of course, difference of opinion upon some details. The report is indorsed, either unqualifiedly or with criticism of unimportant details, by J. H. Jameson, instructor in physics, Pratt Institute, Brooklyn, N. Y.; George R. Twiss, head science teacher, Central High School, Cleveland, O.; Ralph S. Tarr, professor of dynamical geology and physical geography, Cornell University, Ithaca, N. Y.; and Robert H. Cornish, assistant in physics, Girls' High School, New York city. G. L. Collie, professor of geology, Beloit College, was unable, on account of illness, to examine and criticise the report. It appears that no member of the subcommittee has expressed radical dissent from the views set forth in the preliminary report.

It is only necessary to remark further that the few notes which I have deemed it proper to add to the report are distinguished from the notes which originally formed a part of it, being inclosed in brackets.

COMMITTEE ON PHYSICAL GEOGRAPHY TO THE NATURAL SCIENCE DEPARTMENT OF THE NATIONAL EDUCATIONAL ASSOCIATION

To the Natural Science Department of the National Educational Association:

The committee appointed to consider the course in physical geography in secondary schools would respectfully report as follows:

The decision of the department at the Milwaukee meeting, to double the membership of the several natural-science committees, occasioned serious delay in the work. Diligent efforts were made to secure the additional appointments for geography. It was found in March last that three vacancies still remained; but, in order to prepare a report in time for the meeting at Washington, with the approval of Professor C. S. Palmer, the general secretary of the committee, work was undertaken, the committee being constituted as follows:

NEW ENGLAND ASSOCIATION

WILLIAM NORTH RICE, professor of geology, Wesleyan University.
W. H. SNYDER, master in science, Worcester Academy.

MIDDLE STATES ASSOCIATION

ALBERT PERRY BRIGHAM, professor of geology, Colgate University, *chairman*.
J. M. JAMESON, professor in Pratt Institute.

NORTH CENTRAL ASSOCIATION

G. L. COLLIE, professor of geology, Beloit College.

SOUTHERN ASSOCIATION

COLLIER COBB, professor of geology, University of North Carolina.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

RALPH S. TARR, professor of dynamical geology and physical geography, Cornell University.

DEPARTMENT OF NATURAL SCIENCE, NATIONAL EDUCATIONAL ASSOCIATION

W. M. DAVIS, professor of physical geography, Harvard University.

R. H. CORNISH, assistant in physics, Girls' High School, New York city.

The chairman prepared a preliminary list of questions for criticism by the several members of the committee. The following circular of inquiry was then issued as a basis of work for members of the committee and others :

1. Should a high school offer the following subjects under the general head of geography? Mathematical geography, meteorology, oceanography, physiography of the land, distribution of organisms, economic geography, geology. If geology is included, what parts of the subject should be taught? What topics should economic geography embrace?

2. In what year or years of the high-school course should physical geography have place? What studies should precede or follow?

3. What preparation in geography is to be expected from the elementary schools?

4. Outline of work for one- and two-year courses, including order and time allotment for subjects named in 1, and number of periods per week.

5. Place of geography in college-entrance requirements. Should geography be elective or required in so-called English courses? In classical courses? To what extent may geography be presented as a substitute for other subjects, particularly for other sciences?

6. Text-books.

7. Laboratory work; how related to lectures and recitations; outline of laboratory courses; use of notebooks; amount and character of field work to be done; modifications in field work or substitutions for it, in city schools.

8. Standard equipment of maps, models, photographs, lantern slides, specimens, and apparatus, for class-room and laboratory.

9. Lists of books in geography recommended for school or teacher's library.

10. Any other phase of the subject deemed important.

The several individual discussions thus prepared were embodied in this report, which was amended and approved at a meeting of the committee held in Springfield, Mass., July 1-2, 1898. Only those who were able to be present at this meeting have signed the report. The gentlemen who were not present cannot be held responsible for the views here expressed, but they have all made valuable contributions to the paper, and are believed to be in accord with most of its positions. In the case of the signers of this report, it is not to be understood that every one approves of every proposition announced as the opinion of the majority of the committee, tho all do find themselves in cordial harmony with the views of the report as a whole.

I

The committee finds itself in agreement as to the scope of physical geography, and as to the topics which should constitute parts of a high-school course in this subject. The meaning and general scope of physical geography have never been better expressed than in the words, "the

physical environment of man," used by the conference on geography in its report to the Committee of Ten. On the whole, the term "physical geography" is to be preferred to "physiography," as having in common usage a more precise definition. Physiography, in the English sense of a general introduction to all sciences, is too broad; and in the sense in which it is now employed by some American students it is not broad enough. The ideal high-school course in physical geography will neither be too general and fragmentary, nor too special and difficult. The subject should be carefully held to the leading idea of the physical environment of man; and it should be the aim to exclude a number of subjects frequently treated under physical geography, but more appropriately included under the other heads, for example, purely astronomical matter, certain principles of physics, the classification of animals and plants, and tables of the geological periods. Important and interesting as these subjects are in their proper connections, it is believed that a better mental discipline will be obtained from physical geography when all its parts are closely joined to its leading theme. It may thus provide an intellectual training comparable in value to that secured from physics, mathematics, or language, in which continuity of theme is so well maintained.

It is agreed that the earth as a globe, the atmosphere, the ocean, and the lands should be the principal themes of the course. Here one may, if preferred, use the more formal terms, mathematical geography, meteorology, oceanography, and geomorphology. A serious objection to these terms is that they do not sufficiently take human relations into account. If, however, they are employed, it is to be understood that the character of high-school work, as well as the limited time at disposal, forbid the giving of extended courses in these subjects. They must all, and especially the three former, be given in an elementary way, and all must be taught with the motive and from the special point of view of physical geography, as defined above.

The distribution of organisms should not be taught with reference to zoölogical and botanical classification, but in exposition of the organic environment of man, and as itself controlled by physiographic and other influences. Pupils should be taught the tendency of species to diffuse themselves, and the limitation of the tendency by climatic, oceanic, and topographic barriers. It will, for example, be easy to teach the influence of temperature in the establishment of zones of animal and vegetable life. The difference in the effects of deep and shallow seas as barriers to distribution should be illustrated by reference to Wallace's line, and to the faunas and floras of continental and oceanic islands. The depth and texture of soils and the quantity and distribution of ground water should be explained in relation to their control over the distribution of plants and population. The whole subject may be treated by incidental references in the chapters on the atmosphere, the ocean, and the lands, or may

form the theme of a supplementary chapter, or the two methods may be combined.

Thruout the course in physical geography every opportunity should be taken to illustrate the relation of economic products to physiographic control on the one hand, and to the distribution and condition of mankind on the other hand. If time allows, a summary of the subject might be added as a closing chapter.

In the next section of this report reference will be made to more advanced elective courses of a geographic nature which may have place in the high-school curriculum.

II

The committee recommends that the course in physical geography be generally placed in the first or second year.¹ If the elements of physical geography have been used as a basis for work in geography in the elementary schools, then physical geography in the high schools might perhaps be a relatively advanced course in the fourth year, using the materials afforded by the study of physics, chemistry, and biology in the previous years. It is, however, the opinion of the majority of the committee that, under any conditions, the study of physical geography should come early in the high-school curriculum. Certainly this is the case as matters now stand. It would be unwise to allow pupils to reach the age of eighteen years, or thereabout, without attaining the broad way of looking at the earth that physical geography, of all subjects, gives.

Additional reasons for introducing the subject at an early stage are found in the fact that only a small part of the pupils who enter the high school complete the curriculum, and in the further consideration that the subject can, without deranging the general order of studies, in some cases be taken by those who are preparing for classical courses in college. The committee deems it entirely practicable to teach good courses in elementary physical geography without previous courses in other sciences. The qualified teacher will readily supply any-needed chemical or physical principles. In some cases rudimentary instruction in physics and chemistry has been given in grammar-school courses.

Advanced elective subjects of a geographic nature may be offered late in the curriculum. Among these is geology. It is agreed that the larger share of the time should be given to the dynamical and structural phases of the subject. Only the simplest facts about minerals and rocks can be given, and such difficult dynamical subjects as metamorphism and vulcanism can only be treated in a general way. It will be possible for a competent teacher to give effectively the elements of historical geology, especially if good museums or localities for fossils be at hand. Detailed

¹[The majority of those who have expressed a preference as between the first and second years prefer the first.]

instruction in historical geology is too difficult for high-school pupils, and should not be attempted.

The course in geology should, if practicable, follow those in physics and chemistry, probably in the last year of the curriculum. In dynamical and structural geology the subjects treated will necessarily be, to some extent, the same as those in the earlier work in physiography. But the treatment of these topics in the course on geology will be in less degree simply descriptive. For instance, in the earlier course, some general ideas of the work of running water and the development of topographic forms can be given. In the later course the work of running water should be explained in relation to the laws of energy, the steam being considered as a falling body. In the course of physical geography the general action of the atmosphere in the decay of rocks can be presented; but in the later course in geology the nature of the chemical changes involved in weathering should be illustrated. In general, dynamical geology should be regarded as the chemistry and physics of the globe, and the conduct of this course must, therefore, presuppose a knowledge of chemistry and physics on the part of the student. If the pupil has studied zoölogy, or botany, or both, during the early years of the curriculum, it will be possible to make an outline of historical geology more intelligible than it could otherwise be.

The committee approves of the suggestion that an advanced elective course in meteorology may be introduced, if the number and qualifications of the teachers render it practicable. Such a course would probably come in the last year, accompanying or following a course in physics. Such a course would sustain to the meteorological chapters in physical geography a relation similar to that which the course in geology bears to that section of physical geography which concerns geological processes.

If a course in astronomy is offered in the later high-school years, it would follow as a natural expansion of the chapter on the earth as a globe.

If a later course in physical geography should be introduced, it might be either as an expansion of the first course, with more advanced treatment, or a course on the physical features of some land area, preferably the United States.

Altho it has seemed worth while to give brief indication of the nature of the four advanced courses above outlined, it is not desired to imply that all high schools should at present offer all, or, indeed, any of them. The chief interest of the committee is in the establishment of a well-considered elementary course.

III

It may be reasonably expected that, in the teaching of geography in the elementary schools, a good beginning will have been made in acquainting the pupil with the conceptions of physical geography. Geographical

teaching has greatly improved in the last two decades, and much is to be expected in the near future from the current agitation in this field. Frye's *Complete Geography*, and the *Natural Advanced Geography* by Redway and Hinman, illustrate the kind of knowledge which may be expected to be acquired in the grammar schools. Teaching that deals with mere matters of location may with advantage be replaced by the introduction of the causal notion.

IV

The committee desires to emphasize at the outset that no one curriculum can be the best for all high schools. No outline of work can be made to fit all conditions. It is of doubtful utility to give to teachers at large anything more than a very general outline, which may offer suggestion and prove a help and incentive to better things. Not less than four periods per week for one year should be assigned to the proposed elementary course in physical geography. Five periods would be better. Periods of less than forty-five minutes each would be inadequate; and, in any case, two periods per week should be scheduled together, to be used, if desired, for field or laboratory exercises.

Of the leading subjects—the earth as a globe, the ocean, the air, and the land—the first should occupy the least time, and the others should have an increasingly larger allowance, in the order given. Adequate treatment of the features of the land will require as much time as the other three subjects combined, and it may be more.¹ If the distribution of organisms and economic geography are treated as separate subtopics, the time allotted to them must necessarily be short. As regards the whole question of proportion, it must again be said that much depends on the teacher and the environment. A teacher in a school situated near the ocean might give much attention to the features of the shore line, while one in the interior might give a larger share of attention to plains or mountains.

It is not deemed necessary to present in this report detailed outlines of teaching material. Recourse should be had to text-books, school journals, and especially to the report of the conference on geography to the Committee of Ten.

Nor it is thought best to give estimates of time for the advanced elective courses which have been suggested, believing that time allotment must vary with the views of teachers and the conditions of schools. If the association desires the committee to go farther into the question of outlines, it will be glad to receive instructions on that point.

V

Recalling the fact that the Committee of Ten places physical geography as a requirement in the first year of all high-school courses, your

¹ [One member of the subcommittee regards the last clause of this sentence as an overstatement.]

committee desires to express its agreement with this indication of the importance of the subject, in the hope that it may be made accessible to all. The committee would, however, hesitate to propose the prescription of the study for all, but does strongly urge that physical geography be required in all English high-school courses. It also believes that it should be elective in classical courses, either on the same footing with all the other sciences, or in a position secondary to physics, as indicated below.¹

The attention of educators has been of late repeatedly called to the truth that a four-years' course consisting almost exclusively of classics and mathematics, with scant recognition of English literature, practically no modern history, and no physical or natural science, is a course so unsymmetrical as to be a monstrosity. The relation of the different educational institutions to each other ought to be such that a course preparatory to college will also be a course well adapted to fit the student for the later work of life, and for social and civil duties, in case he should fail to take a college course. It cannot be claimed that the present classical course in high schools, constructed with reference to the classical course in colleges, makes any approximation to this result. The student who has completed a high-school course in preparation for the classical course in college has gained, not a tolerably complete and symmetrical education as far as it goes, but a wretched torso of an education. Nor is the exclusion of science injurious only to those whose studies are interrupted at the end of the high-school course. For those who enter college, the ignoring of the study of nature in preceding years tends to unfit them for success in such studies. Their powers of observation and imagination of physical phenomena are well-nigh atrophied by disuse, and they have lost their native curiosity about the world in which they live. It would tend to correct this evil if a certain amount of science were required for admission to the classical course. Physical geography would be one of the most suitable subjects to be thus required; but, in the present unsettled and transitional condition of our educational system, it would probably be better for the colleges to allow an option among several scientific subjects.

Taking the point of view of the college, the sentiment of the committee is that physical geography should not be required for entrance to any of its courses, but that the college should accept it as a part of the preparation for any course, when pursued for not less than one year, provided the teaching has attained a proper standard of excellence. In its relation to physics, chemistry, zoölogy, botany, and physiology, several members of the committee believe that geography should stand on a perfectly equal footing, as an alternative requirement, but some would assign

¹ [Two members of the subcommittee believed that, if one science is to be preferred to another, as a study in the classical courses in high schools and a condition for admission to college, physical geography, rather than physics, should be preferred.]

to physics distinctly the first place. Those who take this view, however, would insist that geography be accepted as an alternative for any other scientific subject. The college should not fail to set serious tests in geography, where given at all.

V

The number of text-books which represent the best current standards of high-school geography is not large. Several now before the public are fairly well adapted for class use. Their titles will be found in the annotated list to which reference is made later in this report. In the use of these books, as well as in the preparation of new ones, it is hoped that the definition of the subject, as already given, will be carefully regarded. The earth in relation to man should receive sustained emphasis, and irrelevant scientific matter should be reduced to a minimum. A number of good text-books are available in the subjects suggested for advanced elective courses.

VII

Field and laboratory work should receive emphasis in every high-school course in geography. So far as practicable, the lectures, discussions, and recitations should be related to such work. Notebooks should be carefully kept, but their importance should not be emphasized in an artificial way. It is possible for a pupil to make a handsome notebook while entering little into the spirit of the subject.

Field work during the open season should take the place of at least half of the laboratory work, if conditions allow. It must not be forgotten that the field is, from one point of view, an out-of-door laboratory. The teacher must plan the work according to circumstances, but it should certainly include practice in the making of sketch maps, study of the development of the land forms, and observation of the distribution of plants on a small and varied area. In most cities except the largest,^{*} field study can be accomplished without serious difficulty by short excursions into the country. Such work is strongly recommended. The interest attaching to such trips will frequently enable the teacher to place them in afternoons and holidays. Field work has been undertaken with favorable results in Buffalo, Chicago, and elsewhere. The report of the Chicago committee for preparing a syllabus in physical geography includes a valuable list of such possible trips for the use of the teachers of the city. Eleven excursions are scheduled, giving route and cost of round trip, and naming the phenomena to be seen and studied. The latter include stone quarries, streams, bowlders, and glacial topography, sand dunes, lake shores, and a large museum. Preparation of similar guides for other cities would greatly advance this kind of geographic study. Chicago is

^{*} [One member of the subcommittee protests that on this point there is no need of recognizing any exceptions.]

not an exception. An equally important group of facts is assembled in the vicinity of nearly all cities.

Laboratory work in geography is comparatively new to the schools at large, and hence suitable manuals or outlines are few; but sufficient bodies of suggestion are at hand for good beginnings. One member of the committee has contributed the following, which is here included, not as a specific guide, but by way of informal suggestion :¹ (Figures in parentheses indicate the number of hours for each exercise.)

- Cause of day and night, and extent of sunlight over surface. (1)
- Determination of latitude, north and south line, and high noon. (1)
- Determination of difference of longitude by sending watch. (1)
- Finding variation of local and standard time. (1)
- Making maps on different projections. (4)
- Study of ocean-current maps. (1)
- Study of tide charts. (1)
- Study of map of the world, showing heights of land and depths of sea. (2)
- Difference in temperature between the top and bottom of a hill. (1)
- Finding height of hill or building by barometer. (1)
- Determination of dew-point. (1)
- Making isotherm and isobar maps from furnished data. (4)
- Study and reproduction of weather map. (1)
- Predictions from weather maps (written with reasons). (2)
- Observations of rain-fall, temperature, velocity of the winds, etc.
- Determination of the amount of snow-fall and the amount of water produced by an inch of snow. (1)
- Observations of ground temperatures, depth of frost, etc.
- Making contour and hachure maps from small models. (2)
- Drawing cross-sections from contour maps. (4)
- Written descriptions of models. (4)
- Picture-reading (written description). (4)
- Map-reading (written description). (4)
- Reproduction of contour map in hachures. (1)
- Making map of small area in neighborhood. (1)
- Planning of journey, with study of country to be seen. (4)
- Determination of the amount of sediment carried by a stream. (1)
- Study of rocks and minerals. (10)
- Study of erosion by sprinkling-pot. (2)
- In fall, four excursions, one a week. (8)
- Four excursions in spring. (8)

For another laboratory outline which has been tested by actual experience, see "Laboratory Work in Elementary Physical Geography," by R. H. Cornish, *Journal of School Geography*, June and September, 1897.

VIII

There cannot be a uniform or standard equipment of apparatus for geographical teaching. It is sought here only to give such suggestions

¹ [One member of the subcommittee considers some of these exercises too difficult, or otherwise unsuitable. It will be understood that the list is given, not as a program to be followed, but as a suggestion to be considered.]

as may enable teachers and schools to acquire, without serious mistake or delay, materials for effective work. Maps and photographs will naturally predominate, and slides and projecting apparatus should be added, if possible, with the more common meteorological instruments. Care should be taken to secure illustrations well related to the systematic progress of the work. For example, under land forms, the illustrations introduced should be chiefly directed to explaining their causes and consequences rather than to the production of striking pictorial effects. A set of about one hundred classified lantern slides selected by W. M. Davis, chiefly from the Gardner collection of geological and geographical photographs of Harvard University, can be purchased from E. E. Howell, Washington D. C. Some of the more important materials, such as the topographic maps of the United States Geological Survey, cost but little; and much material may be had free of cost, from official surveys, or as gifts from individuals interested in the school. Some account of these and other official maps may be found in "Governmental Maps for Use in Schools," published by Henry Holt & Co., New York.¹ Models serve a useful purpose, if their vertical scale is not too much exaggerated. Among those that may be mentioned are a number made by E. E. Howell, Washington, D. C., and the "Harvard Geographical Models," published by Ginn & Co., of Boston.

Suggestions concerning the use of these topographical maps in schools have recently been published by the departments of public instruction of Massachusetts, Rhode Island, Connecticut, and New York. Similar publications would be useful in other states. An important publication of the United States Geological Survey has lately been begun in the "Topographic Atlas of the United States," of which the first folio, entitled *Physiographic Types*, by Henry Gannett (price, 25 cents), will be found of much practical service. Other folios of this series are promised for the future.

It is believed that school boards will in the end furnish appropriations for geography as freely as for physics or chemistry, if the needs of geography are duly appreciated by superintendents, principals, and science teachers. Abundant allowance of time should be given to secondary teachers of geography, to perfect their equipment, and to work out the new problems with which they have to deal.

By way of further suggestion, the teacher is referred to an article on the "Equipment of a Geographical Laboratory," by W. M. Davis, in the *Journal of School Geography* for May, 1898. The following list also indicates an equipment found practically useful by one member of the committee: good globe, small globes (25 cents), one for each two pupils,

¹ Since the publication of this book, the free distribution of the pilot charts of the North Atlantic, issued by the United States Hydrographic Office, and of the topographical maps published by the United States Geological Survey, has been suspended. The charts and maps are now sold at a very low price by the respective bureaus of publication. The method of purchasing the maps issued by the Geological Survey is explained in the *Journal of School Geography* for September, 1897.

plumb-bobs, vertical standards for the determination of latitude, Kiepert's "Physikalische Wanderkarten" (Europe, Asia, North America, South America), "Weltkarte zur Übersicht der Meerestiefen und Hohenschichten," small compasses, bright, thin metal dishes for the determination of dew-point, blank weather maps, co-ordinate paper, thermometer, barometer, rain gauge, tide charts, ocean-current maps (copies from Challenger expedition), small wooden balls, small outline maps, sprinkling-pots and boxes, a few typical charts, geological maps, United States contour maps (sufficient duplicates of some sheets to give one to each pupil), Harvard geographical models, fragments of models for contour-drawing, maps of different projections, a few English hachure maps, photographs and pictures, stereopticon and views, several atlases, collection of rock and mineral specimens, enough for each pupil, if possible.

For illustration of the structures and processes concerned in the development of land forms, there should be specimens of the common rock-forming minerals, and of such rocks and structures as are important in determining topographic forms, or have economic value. Thus there should be sandstones, conglomerates, shales, and limestones, lavas, specimens showing faults on a small scale, slickensides, crumpled lamination, ripple-marks, raindrop impressions and sun-cracks, glacial boulders and glaciated surfaces, stalactites and stalagmites. If an advanced course in geology is given, the amount of such material as has been indicated above should be materially increased, and some fossils should be added. In all cases care should be taken to avoid such jumbles of miscellaneous minerals and fossils as often make up collections so-called.¹

IX

An annotated list of text- and reference-books has been prepared by Miss Mary I. Platt, recently of Radcliffe College, now teacher of geography, High School, Holyoke, Mass. The list, including fifty titles, has been examined and criticised by W. M. Davis and R. E. Dodge, and is published in the *Journal of School Geography* for May, 1898. This is by no means intended to be exhaustive of useful books, but outlines a useful beginning of a school library which might to advantage be greatly increased. It is further suggested that the *Journal of School Geography* is the most important help with which teachers of the subject can provide themselves.

X

PREPARATION OF THE TEACHER

It is not to be expected that notable success in this or any other subject will be attained, if attention is so far turned to the outline of the course or the equipment of the schoolroom that the preparation of the

¹[Mr. Cornish has furnished a list of apparatus for physical geography recently purchased for the high schools of New York city. As the list may be useful to teachers by way of suggestion, it is presented as an appendix to this report.]

teacher is forgotten. The committee, therefore, wishes to emphasize three points that are of prime importance in this connection. The training of the teacher should have reached a distinctly higher grade in physical geography than that of the course to be given. It should include laboratory courses in physics, chemistry, botany, zoölogy, and geology, and it should have developed ability to take advantage of the local phenomena in the neighborhood of the school in the conduct of field work. These considerations should weigh in the selection of new teachers. Teachers already employed and of good experience in their work should be urged to supplement their preparation, if deficient in any of the lines above indicated, by attending serious courses in teachers' classes and summer schools, as far as practicable with due regard to rest and health.

A primary object of this report has been to attempt a rational definition of physical geography, and to offer to teachers and school authorities a line of suggestion in organizing geographic instruction especially to secure a sound elementary course in the early years of the high school. Minute and specific directions are undesirable, because a great variety of conditions must be met, and the new must be built upon the old. A further object here sought is to set forth practicable views of the co-ordination of geography with the other sciences in the high-school curriculum, and of geography as a factor in satisfying college-admission requirements. The results, of course, are tentative. It is not thought that this committee, and the other committees with which it is associated, can formulate a rigid or final plan for all schools, but an approximation toward unity can be made, with advance upon the chaotic conditions of secondary science instruction in the past.

The committee would be glad to be continued for another year, in order that, profiting by the discussions of its conference already held, and by such criticisms as the publication of the present report may evoke, it may embody the results of further consideration in a subsequent report.

ALBERT PERRY BRIGHAM.

COLLIER COBB.

W. M. DAVIS.

WILLIAM NORTH RICE.

W. H. SNYDER.

Which is respectfully submitted.

WILLIAM NORTH RICE,
Acting Chairman.

APPENDIX

APPARATUS FOR PHYSICAL GEOGRAPHY RECENTLY PURCHASED FOR THE HIGH
SCHOOLS OF NEW YORK CITY

MAPS.

- 1 set (6) Habernicht & Sydow physical wall-maps. Hemispheres, Asia, Europe, North America, South America, Africa.
- 1 bird's-eye view, United States.
- 1 blackboard outline, United States.
- 1 blackboard outline, middle and eastern United States.
- 1 physical map, Switzerland.
- 1 Guslin's definition map.

GLOBES AND MODELS.

- 1 12-inch Joslin globe.
- 1 12-inch slated globe.
- 1 model United States, E. E. Howell, Washington, D. C.
- 1 model New Jersey, E. E. Howell, Washington, D. C.
- 3 Harvard geographical models.

GOVERNMENT MAPS.

- 1 geologic atlas, New Jersey, New Jersey Geological Survey.
- 9 selected geologic folios, United States Geological Survey, Washington, D. C.
- 335 selected sheets, topographic atlas, United States, including complete sets of Massachusetts, Connecticut, and Rhode Island, and Pennsylvania and New York, as far as published, as well as maps of other states.
- 3 special geologic sheets, United States Geological Survey.
- 1 set Mississippi river (preliminary) charts, Mississippi River Commission.
- 1 set flood plain, Mississippi river, Mississippi River Commission.
- 22 lake-survey charts (selected), United States Great Lakes Survey Commission, Detroit, Mich.
- 67 selected coast-survey charts, United States Coast and Geodetic Survey.
- 46 pilot charts of Atlantic and Pacific oceans, United States Hydrographic Office.
- Blank weather maps, Form D, United States Weather Bureau.

PICTURES AND LANTERN SLIDES.

- 126 selected lantern slides.
- 54 selected mounted photographs of natural scenery, 12×10.
- 50 selected mounted photographs of natural scenery, 6×7.
- 12 selected mounted photographs of natural scenery, 12×14.
- 6 selected mounted photographs of natural scenery, 7×8.
- 1 set (5) photochromes, 18×20.
- 2 Alpine photographs (large).
- 1 set (37) Holzel's geographical pictures.

MINERALS AND ROCKS.

- 1 set prepared slides of mineral and rock sections.
- 6 boxes selected mineral specimens, 40 specimens each of 40 different minerals.
- 2 boxes selected rock specimens, 40 specimens each of 20 different rocks.

METEOROLOGICAL APPARATUS.

- 1 barograph.
- 1 thermograph.

- I exposed thermometer.
 - I solar radiation thermometer.
 - I aneroid barometer.
 - I standard (mercurial) barometer.
 - I set maximum and minimum thermometers.
 - I soil thermometer.
 - I wind-vane and anemometer.
-

SPECIAL REPORT OF THE COMMITTEE ON CHEMISTRY

PRESENTED TO THE COMMITTEE ON COLLEGE-ENTRANCE REQUIREMENTS OF THE NATIONAL EDUCA- TIONAL ASSOCIATION

I. VALUE AND PLACE OF CHEMISTRY

The study of chemistry is a valuable constituent of the high-school course on account (1) of the training in observation in general and correct induction from observation which it affords, and (2) of the first-hand information which it gives about well-known materials, the principles of their manufacture, and their properties, as the result of personal observation.

The college invites its study in preparatory schools on account of these two benefits. To be of subsequent use the method and content of the courses in preparatory schools must be definite and uniform. The selected matter must be thoroly taught, so as to form a recognizable constituent of the preparation of those who present it. When these conditions are fulfilled, the college must give proper recognition to the work. All colleges must give admission credit for the subject. In addition to this each college must provide definite means for advancing the entrant in chemistry to an extent corresponding to his previous knowledge of the subject. The precise method of doing this will depend upon the nature of the courses the college itself offers. In any case no pupil who offers chemistry for entrance, and receives definite credit for it, should be placed in the same class with beginners who had no such credit.

Without laboratory work school chemistry is wholly valueless for the purposes just mentioned. It should be preceded by physics, since chemistry necessarily assumes a knowledge of the physical properties of matter and of the phenomena connected with heat and electricity. If, on account of limited teaching force, relatively little time can be given to the science, it is preferable to give a year each to one or two sciences than shorter periods to a larger number. It must be remembered that, for the

efficient teaching of science, preparation of apparatus and experiments for demonstrations and laboratory work are necessary, and the science teacher cannot, therefore, carry more than half the number of recitations assigned to most other teachers.

OUTLINE OF A ONE-YEAR COURSE

The work outlined below will demand at least 200 hours' work ; about half the time, in two-hour periods, should be spent in the laboratory.

II. METHOD OF TEACHING

Laboratory work.—The experiments must be performed by each pupil individually.

Each pupil must record his observations and the interpretation of them in a notebook. His work should be continuously supervised and his records frequently examined by the teacher.

Most pupils will tend to fall into merely mechanical performance of assigned work. To combat this is the most difficult task of the teacher of chemistry. Each experiment is a question put to nature, and forethought and care are necessary in putting the question, and study and reflection in interpreting the answer. Strenuous effort is required to make the pupil realize this. The questions incorporated in the laboratory outline, to which answers are expected as part of the notes ; individual questioning in the laboratory ; above all, frequent, thoro quizzing of the whole class, are the best means of forcing the significance of this practical work into the foreground.

Beginning at an early stage in the course, simple quantitative experiments should be given, in order to illustrate the laws of definite and multiple proportion, the determination of combining and equivalent weights, the specific gravity of gases, etc. This will enable the pupil to appreciate the fact that, altho the quantities used in the majority of laboratory exercises may not be measured, yet the proportions and the compositions by weight of substances involved in all chemical changes are definite and measurable. Without such measurements atomic weights will seem purely mythical. Not less than six such exercises should be given. One or two of these experiments must be introduced early, in order that formulæ and equations, when the time for their employment comes, may be given as abbreviated expressions of the results of quantitative measurements.

Qualitative analysis is a branch of applied chemistry, and cannot be learned otherwise than mechanically without a long preparation in general chemistry. There should be no pretense of teaching it in a secondary school as part (much less as the whole) of the first year's work. It gives a distorted view of the classifications of the elements and of the relative importance of their properties, and bears the same relation to the science

of chemistry that the Linnæan system of classification in botany bears to the natural.

Yet exercises on the recognition of chemical substances will tend to fix their properties in the mind and give a useful review of many of the facts and principles of the science, provided that a proper method of conducting them be pursued. Analytical tables encourage mechanical work in a remarkable degree, and cannot be permitted. An outline suggesting suitable dry- and wet-way experiments, which will throw the burden of thought and rigid proof on the pupil, will be a sufficient guide. This part of the work may fitly occupy five or six weeks of the course.

Class-room.— Many parts of the subject can best be introduced by means of carefully reasoned and fully illustrated demonstrations by the teacher. Sometimes also this method of teaching has to be used where the apparatus is complicated and cannot be supplied to each pupil, or where, in striving to make the experiment successful, the pupil will be in danger of wasting time. Thus on pedagogical or practical grounds some of the Hofmann experiments for illustrating the application of Avogadro's hypothesis (explosion of hydrogen and oxygen, electrolysis of hydrochloric acid, etc.) are best performed by the teacher. (No teacher should fail to read Hofmann's admirable *Lectures on Modern Chemistry*, 1865.) The line of thought to be developed in connection with the experiments performed by the teacher and by the pupil is well given (pp. 1-9) in the *Harvard Requirements in Chemistry* by Professor Richards.

The theories and principles must be presented inductively. They should not be stated as dogmas, or as if they were part of the facts. They should be held in reserve until some accumulated facts demand explanation and correlation. Facts incapable of correlation should be avoided as far as possible. On the other hand, explanations by the handy affinity idea are worse than useless, as they are generally pure nonsense. When symbols and formulæ are first introduced, special care must be taken to show how they are derived from quantitative measurements. The pupil's own observations and other examples must be used to show how the formulæ, and finally the equations, are reached as expressions of quantitative relations. The whole process of determining the proportions by weight and constructing the formulæ and equations must be done or described in connection with every chemical change, until the pupil is thoroly familiar with the operation and the exact significance of the equation is perfectly clear (cf. Harvard pamphlet already mentioned (p. 24) on this point). Formulæ must on no account be used before this can be done, as otherwise they will inevitably appear to be the source of information instead of the receptacle for it. All "exercises in writing equations" and rules for constructing them, as if they were mathematical expressions, must be rigidly excluded as fantastic and misleading. The misuse to

which equations have been put has led to their omission or prolonged postponement by some teachers. Their introduction at an early stage can do no possible harm, provided the laboratory work contains exercises specifically intended to illustrate the way in which the facts recorded in the equations are ascertained and the manner in which the equations are constructed from these facts. The atomic theory should not be introduced until after this experimental foundation of the equation is thoroly familiar. The equation has no necessary connection with this theory. The teacher will derive valuable hints in regard to method from Perkin and Lean's *Introduction to Chemistry*.

Library.—Interest in the study should be fostered by providing a small library. The use of this will counteract the idea which the pupil may possibly receive that the text-book employed in the class is a "complete" treatise. It should contain some more advanced works, as well as some of a more popular nature.

III. SUBJECT-MATTER

The following outline includes only the indispensable things which must be studied in the class-room and laboratory. The material is, for the most part, common to all elementary text-books and laboratory manuals. Each book makes its own selection of facts beyond this which may be necessary for the illustration of the principles of the science. The order of presentation will naturally be determined by each teacher for himself.

Outline.—The chief physical and chemical characteristics, the preparation and the recognition of the following elements and their chief compounds: *oxygen, hydrogen, carbon, nitrogen, chlorine, bromine, iodine, fluorine, sulphur*, phosphorus, silicon, potassium, *sodium*, calcium, magnesium, *zinc*, copper, mercury, silver, aluminium, *lead*, tin, *iron*, manganese, chromium.

More detailed study should be confined to the italicized *elements* (as such) and to a restricted list of compounds, such as: water, hydrochloric acid, carbon-monoxide, carbon-dioxide, nitric acid, ammonia, sulphur-dioxide, sulphuric acid, hydrogen-sulphide, sodium-hydroxide.

Attention should be given to the atmosphere (constitution and relation to animal and vegetable life), flames, acids, bases, salts, oxidation and reduction, crystallization, manufacturing processes, familiar substances (illuminating gas, explosives, baking powder, mortar, glass, metallurgy, steel, common alloys, porcelain, soap).

Combining proportions by weight and volume; calculations founded on these and Boyle's and Charles' laws; symbols and nomenclature (with careful avoidance of special stress, since these are nonessential); atomic theory, atomic weights and valency in a very elementary way; nascent state; natural grouping of the elements; solution (solvents and solubility

of gases, liquids, and solids, saturation); ionization; mass action and equilibrium; strength (=activity) of acids and bases; conservation and dissipation of energy; chemical energy (very elementary); electrolysis. Chemical terms should be defined and explained, and the pupil should be able to illustrate and apply the ideas they embody. The theoretical topics are not intended to form separate subjects of study, but to be taught only so far as is necessary for the correlation and explanation of the experimental facts.

The facts should be given as examples from various classes, and not as isolated things. Thus to speak of a "standard method of preparing hydrogen," whereby the action of zinc on hydrochloric acid is meant, shows narrow and infertile teaching. It should be shown that all acids are acted upon by a certain class of metals to produce hydrogen. Examples of both classes of metals should be given and the general principles derived. The reason for using zinc and hydrochloric acid in the laboratory can then be stated.

IV. EQUIPMENT

Chemistry cannot be taught satisfactorily without a proper laboratory and a sufficient supply of apparatus. The former should contain desks, with gas and water connections, bottle racks, and well-ventilated hoods. Each pupil should have his own set of apparatus.

In view of the prevailing idea that quantitative experiments require expensive apparatus, it may be mentioned that a balance with case (Becker No. 31)—costing, when imported duty-free, \$15—and weights (\$1.25) will amply suffice, and some teachers secure good results by giving each pupil ordinary hand-scales, costing less than \$1.50. There should be one balance to every six pupils working at one time. In addition to this the following will be required:

Barometer; thermometers; burettes, two for four pupils at least; porcelain crucibles for each student; bottle for aspirator (one liter) for each student.

Most of the apparatus for demonstrations can be made by the teacher by use of the blowpipe, some glass tubing of various sizes, and a few pieces of thin platinum wire.

It may not be out of place to add that a teacher competent to instruct a class after the fashion indicated here must have had considerable training in the several branches of the sciences. His minimum equipment will be: physics (one year), general chemistry (one year), qualitative analysis (two terms; one term = twelve weeks), quantitative analysis (one term), theoretical chemistry (one term), organic chemistry (one term), some acquaintance with the history of the science, and familiarity with all the chief books suitable as works of reference in connection

with such a course, and all the text-books for secondary-school chemistry.

ALEXANDER SMITH, University of Chicago, *Chairman*.

W. B. GRAVES, Phillips Academy, Andover.

E. F. SMITH, University of Pennsylvania.

FRANK ROLLINS, Boys' High School, New York.

W. T. VAN BUSKIRK, High School, Peoria, Ill.

W. L. DUDLEY, Vanderbilt University.

C. F. MABERY, Case School of Applied Science.

G. W. BENTON, High School, Indianapolis, Ind.

EXCEPTIONS BY PROFESSOR P. C. FREER

In discussing the above report, I would beg to make the following additions and exceptions :

I advise the omission of the determination of the specific gravities of gases. My reasons are as follows :

With the pupil's knowledge and the apparatus at his disposal, the result must be more or less inaccurate. Inaccuracy in quantitative experiments robs them of their significance. The laws of definite and multiple proportions are *exact*, and, if they are to be illustrated by quantitative experiments, *exact* results are necessary.

Hofmann's *Einleitung in die moderne Chemie* is a very admirable work, but, in my opinion, the gas laws are dealt with at unnecessary length, and their importance is exaggerated. For the purpose of the teacher, such works as Lothar Meyer's *Elements of Theoretical Chemistry*, or Ostwald's *Outlines of General Chemistry*, are better ; they also give the gas laws, and many other important things in addition.

I cannot agree with the introduction of many commercial processes in an elementary course. The course in chemistry is for the purpose of *education*, and mere information is not education. The time is all too short as it is, and the attention should not be distracted from fundamental principles. Many commercial processes are of such a complex nature that a considerable chemical knowledge is necessary for their understanding, so that, as a consequence, the information must be conveyed to the beginner empirically. In chemical teaching, at present, this method is used to excess, so that I deprecate calling especial attention to the matter.

In my opinion, accurate quantitative results can only be obtained by means of a sensitive balance, the cost of which is from \$40 to \$50. I fail to see how hand-scales can give more than approximate results.

The best and most accurate quantitative experiments for beginners are, in my opinion, volumetric in character. For this purpose, experiments in titration, involving the neutralization of hydrochloric and sulphuric acids by caustic soda and caustic potash, are well adapted. The

solution of known titer can be prepared by the teacher in bulk and kept in stock. The pupil should calculate equivalent weights of bases and acids.

I would rather see the time spent in training the teacher in qualitative analysis in part devoted to organic chemistry and to physical chemistry. With a good training in general organic and physical chemistry, the high-school teacher is better equipped for his work than he would be were he to devote his time more extensively to analysis, to the detriment of other branches. By this I would have it understood, however, that the study of such a book as Ostwald's *Foundations of Analytical Chemistry* would meet my objections.

P. C. FREER, University of Michigan.

Professor Freer's opinions on Hofmann's work and on commercial processes are not inconsistent with anything in the report. In fact, I believe they express the views of the committee on these subjects. Qualitative analysis cannot be taught scientifically otherwise than on a basis similar to that outlined in Ostwald's *Scientific Foundations*.—ALEXANDER SMITH.

REPORT OF THE COMMITTEE ON BOTANY

OF THE SCIENCE DEPARTMENT OF THE NATIONAL EDUCATIONAL ASSOCIATION

It does not seem necessary to discuss the proposition that contact with the phenomena of life should form a part of the training of the secondary schools. If this be granted, either plants or animals, or both, are to be studied. In case both are studied, it is the judgment of your committee that they should be studied consecutively, and not intermixed. The two lines are entirely divergent, and to study plants and animals alternately leads to confusion, and often to entire misapprehension. All of the fundamental principles of biology can be obtained from either line.

A. Probably the most common method of teaching botany in the secondary schools is to conduct recitations, which are little more than definitions of the parts of flowering plants, and to demand as practical exercises the preparation of a small herbarium, and the analysis of a certain number of flowers in accordance with some "key." In the judgment of your committee this method is entirely inadequate. It deals with but a small portion of the plant kingdom, and presents the least important details of that portion. It brings no conception of plants as living things, and develops no biological principles.

B. A newer method, and one prevailing in the larger and better-equipped secondary schools, is organized upon a far more rational basis.

It seeks to present the essential structures of the whole plant kingdom by the examination of a series of types, and the facts observed are co-ordinated by a text-book or by lectures. The method involves the almost continuous use of the compound microscope. In the judgment of your committee the compound microscope is both useful and necessary in the demonstration of many important structures that should be brought to the attention of secondary-school students, but its excessive use in the first contact with plants is to be deplored. The compound microscope is a difficult piece of apparatus for a young student to use intelligently, a proper interpretation of that which is seen demanding considerable training, involving more total time and longer periods than are given in secondary schools. Another danger of such a course is that the contact with plants is one of structure rather than of function, and details of minute structure are not related to previous or subsequent experience, except in the case of very few secondary-school pupils; besides, it involves a needlessly extensive and difficult terminology at the first contact.

Such a course as that referred to above may be conducted to great advantage in schools with small classes, good equipment, liberal laboratory periods, and experienced teachers, but this combination of conditions is not present in the vast majority of secondary schools.

C. A third method is suggested in this report, and is based upon the following principles: the standpoint of observation should be that of plants as living things and at work, details of structure being entirely subordinated; observation should be directed to the most obvious facts, those which form a fitting background for subsequent study, and which easily enter into the subsequent experience of those who do not study further, making the work result in a permanent possession; professional terminology and difficult and expensive apparatus should be avoided as much as possible, the proper place for these being in college and university courses.

D. With these principles in view, it would seem that the first contact should be with plants in their general relations, forming the natural covering of the earth's surface, and holding definite relations to their environment. In addition to the observation of essential life-relations, the most important life-processes should be demonstrated. To develop some elementary knowledge of the life-relations and life-processes of plants will demand at least a half year of work, and is the phase of botany that will count for the most, if but a half year is given to the subject. Naturally such a contact with plants will involve some knowledge of the great groups and their essential structures.

E. In case a second half year is given to botany, it should be devoted to a course in general morphology. Some knowledge of the structure of plants will have been developed during the work of the first half year, but during the second half year the standpoint of structure is made more

prominent, and the evolution of the plant kingdom is traced. For this part of the work compound microscopes and the ordinary laboratory equipment will be necessary. On account of previous training, the type plants selected for study will be related to their proper surroundings, their most obvious relations and processes will be known, and hence their structure will have some significance.

In no case should structure be considered apart from function, so that the course should involve a continuance of experiments in plant physiology.

F. An outline of suggested courses is herewith appended, the first course being for a half year of work, the second course being added to the first for a whole year of work.

FIRST COURSE

1. THE GREAT PLANT GROUPS.—Before undertaking the study of plants in their relations, it will be necessary to give some general training in the recognition of great groups. In a few exercises the pupil may be taught to recognize, in a general way, algæ, fungi, liverworts, mosses, ferns, equisetums, club-mosses, gymnosperms, monocotyledons, and dicotyledons. It should be understood that this preliminary training is not to develop much knowledge of the structures of these groups, but merely to enable the student to recognize them in laboratory and field work.

2. LIFE-RELATIONS AND -PROCESSES.

(1) *The foliage leaf as a light-related organ.*

- a) This fact explaining its position, its form, the relation of leaves to each other.
- b) The structure: demonstrating epidermis, stomata, mesophyll, chloroplasts, veins.
- c) Functions: demonstrating photosynthesis, transpiration, respiration.
- d) Protection of mesophyll: palisade cells, cuticle, hairs, movements, etc.
- e) These relations and functions in green plants without foliage leaves.

(2) *The stem as the leaf-bearing organ.*

- a) Stems bearing foliage leaves, the problem of foliage display being studied in connection with subterranean, prostrate, submerged, climbing, and erect stems.
- b) Demonstrations of movements of water and elaborated material, growth, heliotropism, etc.
- c) Compare stem structure of different types.
- d) Stems bearing scale leaves, being connected with protection, or storage, or vegetative propagation, prominent examples being the bud, the tuber, and the rootstock types.
- e) Stems bearing floral leaves, the flowers being studied as to pollination and seed dissemination, but not as to their extensive terminology.

(3) *The root as an absorbing and hold-fast organ.*

- a) Relations to soil, water, air, mechanical support, etc.
- b) Demonstrations of absorption, geotropism, hydrotropism.
- c) Structure of roots.
- d) Absorption and grappling by plants without roots.

3. THE PLANT SOCIETIES.—This is a study of natural plant areas, such as forest, meadow, swamp, etc., and is very desirable if practicable. It is recognized that in city schools, and in those with very large classes, the study of natural areas can form no large part

of the formal training, but it may always be encouraged. The conditions of several plant societies, however, may be imitated in the schoolroom, and many of the adaptations of plants observed.

- (1) *Water plants*.—An aquarium stocked with characteristic water forms, a collection of marine seaweeds, and some swamp plants are things to be obtained by any school. The structures of such plants should be contrasted with those of plants living under different conditions.
- (2) *Drought plants*.—Characteristic drought plants can be cultivated, and also the effect of drought conditions upon ordinary plants can be noted. The various methods of regulating transpiration and of storing water should be observed.
- (3) *Ordinary plants*.—To contrast the plants growing in genial conditions with those growing in water or drought conditions is a fruitful subject of observation.

SECOND COURSE

PLANT STRUCTURES.—Such a course needs no outline. Types representing each great plant group should be selected and the essential structures observed, unessential details being passed over. Naturally the structures will fall under two physiological heads, the nutritive and the reproductive. In the selection of types the following groups should be represented: algæ, fungi, lichens, liverworts, mosses, ferns, horsetails, club-mosses, conifers, monocotyledons, and dicotyledons.

In connection with this course it would be well to continue some work in plant physiology, a number of simple experiments being "set up" to illustrate the more important functions of the structure under observation.

Such a course also incidentally involves the fundamental classification of plants, which phase of the subject may be carried into greater detail in connection with the study of the monocotyledons and dicotyledons by teaching the use of the ordinary manuals of seed plants.

G. In connection with both of these courses your committee would call special attention to the great importance of drawing as a means of securing definite observation.

It is also the judgment of your committee that to obtain the best results the work, as herein outlined, should be done during the last two years of the secondary-school period.

BOTANICAL MEMBERS OF THE COMMITTEE OF FIVE REPRESENTING:

1. *New England Association of Colleges and Preparatory Schools:*

PROFESSOR W. F. GANONG, Smith College, Northampton, Mass.

MR. DAVID W. HOYT, English High School, Providence, R. I.

2. *Association of Colleges and Preparatory Schools of Middle States and Maryland:*

PROFESSOR B. D. HALSTED, Rutgers College, New Brunswick, N. J.

MR. FRANK OWEN PAYNE, High School, Glen Cove, N. Y.

3. *North Central Association of Colleges and Secondary Schools:*

PROFESSOR CHARLES R. BARNES, University of Chicago, Chicago, Ill.

MR. E. R. BOYER, High School, Chicago, Ill. (Who has not indicated his assent to this report.)

4. *Southern Association of Colleges:*

PROFESSOR ALBERT H. TUTTLE, University of Virginia, Charlottesville, Va.

MR. ALBERT RUTH, High School, Knoxville, Tenn.

5. *A. A. A. S.:*

PROFESSOR CHARLES E. BESSEY, University of Nebraska, Lincoln, Neb. (See dissenting opinion.)

MR. J. Y. BERGEN, JR., High School, Boston, Mass.

6. *National Educational Association:*

PROFESSOR JOHN M. COULTER, University of Chicago, Chicago, Ill., *chairman.*

MR. I. N. MITCHELL, State Normal School, Milwaukee, Wis.

DISSENTING COMMENTS OF CHARLES E. BESSEY

While cordially agreeing with the majority of the committee in the general spirit of the foregoing report, and in many of its propositions and recommendations, I cannot subscribe to it in its present form. The essential points in which I dissent are as follows:

I cannot agree to say, with the majority of the committee, that the compound microscope "is a difficult piece of apparatus for the young student to use intelligently," since I have known of its very successful use in the fourth, fifth, and sixth grades of certain public schools in Nebraska. For pupils in the eleventh and twelfth grades (third and fourth years of the high school, where alone botany should be first taken up) the compound microscope is not as difficult to handle as the chemical and physical apparatus necessarily handled in a good high-school course in chemistry and physics. We are not called upon to make botany a simpler science than chemistry and physics in the secondary schools.

I must dissent emphatically from the proposition that "the first contact [of the pupil] should be with plants in their general relations, forming the natural covering of the earth's surface, and holding definite relations to their environment." This refers to the newest department of modern botany, viz., ecology, which is just now, for the first time, finding its way into the botanical courses of our foremost universities. We who have to deal with advanced students, well prepared in general and systematic botany, find it hard enough work to study the general relations of plants referred to above, and I hold it to be impossible to take up this work successfully in the secondary schools without a much better preparation than suggested in the report of the committee.

I must dissent from much of the detail in the suggested course for the first half year. Instead of attempting the impossible task of teaching the pupil in a few exercises "to recognize, in a general way, algæ, fungi, liverworts, mosses, ferns, equisetums, club-mosses, gymnosperms, monocotyledons, and dicotyledons," it will be far better to devote the half year to this work, giving the pupil the opportunity of becoming personally acquainted with enough kinds under each head given above to enable him to recognize them in something more than "a general way."

As to the "life-relations and -processes" I dissent from the prominence which the report gives them thus early in the course in botany. Many

of the suggestions are useful, e. g., those pertaining to the position, form, and mutual relations of leaves; the stems bearing foliage leaves; prostrate, climbing, and erect stems; relations of roots to soil, water, air, etc.; and some of the experiments and demonstrations are suggestive; but others, again, are impossible of performance in any but the loosest way by secondary-school pupils, e. g., the demonstration of photosynthesis, respiration, and movements of water and elaborated material.

The inclusion by the committee of the study of "plant societies" in the suggested work of the secondary-school pupils is, to say the least, untimely. The pupils with no further preparation than that allowed by the committee are not able to designate the members of the plant societies, and, on account of the newness of this department of botany in America, there are practically no teachers in the secondary schools who are able to give any instruction in it.

I recommend that the committee's "second course" be more fully elaborated, and suggested to the secondary schools as the outline of work to be followed.

CHARLES E. BESSEY.

REPORT OF THE COMMITTEE ON ZOÖLOGY

The committee takes it for granted that, in accordance with the general report of the Committee of Ten, published some time ago, the subject will be awarded a place in the curriculum, and hence the present report covers its position, the character of the course, and extent of the same.

POSITION IN CURRICULUM

Studies on living things appeal more strongly to students of fifteen than to those of seventeen years of age, whereas the reverse is true of precise formal argument. The power of exact reasoning cannot be said to develop early, and the less formal methods of biological science are also transitional to those of both physics and chemistry. Furthermore, the mathematical training necessary for physics particularly is not obtained by the pupil, under present programs in secondary schools, early enough to allow the introduction of work in physics before the third year of the secondary course; hence your subcommittee is all but unanimous in recommending that, since work in zoölogy does not require the rigid training necessary for more formal work in physics and chemistry, it should precede work in these branches. It should, however, be preceded, in its opinion, by a year in general science and physiography.

Whether illustrated by the study of plants or animals, the phenomena of life are so similar and so clearly complementary that a rational arrangement of courses calls for a study of botany and zoölogy in successive

terms or years. Various circumstances may determine in the individual case the order to be followed, yet neither should be studied at the expense of the other, but both receive a due share of attention.

CHARACTER OF THE COURSE

1. Probably the most general method of teaching zoölogy in secondary schools at present is the text-book method. A large amount of information *about* animals is acquired thereby in a limited time, and the minimum of attainment and preparation is demanded of the teacher. Your Subcommittee on Zoölogy is unanimously opposed to this method, for not only is undue emphasis laid on the larger forms of animal life, but also no course has any right to be regarded as a course in science unless it include laboratory work.

2. The systematic method involves the detailed study of a group or groups in the most careful manner from a taxonomic standpoint. This plan has the advantage of bringing the pupils in contact with the objects studied, and trains powers of discrimination and analysis, but it gives the student an exaggerated idea of the importance of certain structural parts and of limited animal groups, and fails to develop general biological ideas.

3. The laboratory study of a series of animals is the method now used with the greatest success. Two tendencies are observed here: (*a*) the rapid superficial examination of a large number of forms, and (*b*) the more accurate study of a limited series of types. Your subcommittee is of the opinion that the thoro, careful study of a few types, emphasizing the quality of the work rather than the amount of ground covered, should be recommended as yielding the best results, tho "the course should not be exhaustive to the extent of becoming exhausting." In content some change in the prevalent character of zoölogical courses seems desirable. The systematic and morphologic work of colleges is not most profitable to the student; minute anatomy is clearly out of place, and exclusive dissecting is too time-consuming. External morphology, life-histories, habits, economic interests, are of far greater interest and value to the pupil, and all members of the subcommittee are united in emphasizing the necessity of paying greater attention to observations on the living animal and its activities.

A series of types can be selected on which it is possible to work without the use of a compound microscope, thus adapting the course to schools having a minimum equipment. The course may, however, be somewhat improved by the addition of a little work on lower forms by the aid of that instrument. The types may be selected with reference to the material available for use, but always with regard to preserving the balance of the course in getting some idea of the wide variation in animal structure, and should be so arranged that related forms come in succession.

It is essential that the student find individually the answers to questions from the objects before him, record independently his observations in the form of notes, and especially of drawings portraying the essential features with accuracy, and should himself conduct experiments of a harmless and simple character on the living animal. The definite information gained in this way and by comparison with other types should be broadened by reading and class instruction on allied topics outlined by the teacher. Of fundamental importance are field excursions for the study as far as practicable of organisms in their natural environment, to collect and compare other forms, to observe and record their habits and activities. For the comparison of types not native to a given region a school museum is desirable, but it should be a small working collection and be put to constant use. The collateral reading of the course should be broad enough to include, not only work of immediate bearing on the topic in hand, but also the records of great naturalists and explorers, which will add to the interest as well as encourage love for nature.

EXTENT OF THE COURSE

Not less than one year of continuous work should be given to biological science, and half of the time should be devoted to zoölogy. Of the five hours per week spent in the study, two may be used for class-room work and three in the laboratory; altho, by virtue of lack of outside preparation for laboratory work, some think that double time should be devoted to it for a given credit. The choice of type forms used in the laboratory is subject to individual variation, but should not exceed ten for a half year's work. The line of study to be followed for each form is indicated by the following analysis:

1. External anatomy: (a) general form and symmetry, regions, parts; (b) comparison with other individuals of the same species, emphasizing points of variation and constancy; (c) comparison with other types.
2. Observations on the living animal, simple physiological tests, emphasizing care with regard to the inferences drawn from the reactions.
3. Class topics, including talks by the teacher, selected readings, class work, analysis of results.

As a specific instance of the application to the individual form, the following instance is taken from the report of one member of the committee:

BUTTERFLY

Any one of various species whose larvæ can be obtained alive near the end of September may be employed. The cabbage butterfly (Pieris), the milkweed butterfly (Danaï), or the swallow-tail butterfly (Papilio) will meet these conditions.

DRAWINGS

1. Imago: dorsal view, wings expanded. X, 1 or 2.
2. Imago: left side, wings closed. (The bodies in 1 and 2 are to be drawn parallel to each other). X, 1 or 2.

3. Imago : front of head. X, 10.
4. Pupa : left side.
5. Full-grown larva : dorsal view.
6. Full-grown larva : left side.

QUESTIONS ON EXTERNAL ANATOMY

1. How many segments behind the head in (a) the imago ; (b) the larva ; (c) the pupa ?
2. What external organs of the imago can be identified in the pupa ?
3. Which feet of the larva correspond with those of the imago ?

OBSERVATIONS ON THE LIVING LARVA

Each student (or group of students) should be provided with a glass vessel covered with netting and containing food leaves, for keeping the larva during pupation.

1. How is locomotion effected ? Illustrate by diagrams.
2. How does the larva feed ? Observe and record the movements of the mouthparts and of the head during feeding. Draw the outline of a partly eaten leaf.
3. (This observation must extend thru several days.) Make and record observations upon the act of pupation.

TOPICS FOR THE TEACHER

(1) The habits and food of butterflies. (2) The number of broods of butterflies during a single season and seasonal dimorphism. (3) Protective resemblance and mimicry. (4) The larger divisions and commoner native forms of lepidoptera. (Examples of lepidoptera illustrating the commoner native types should be shown, and students encouraged to collect and classify them.) (5) The hymenoptera ; their structure, classification, and habits.

ZOÖLOGICAL SUBCOMMITTEE OF THE COMMITTEE OF SIXTY, NATIONAL EDUCATIONAL ASSOCIATION

1. *From the Northeastern Association of Colleges and Preparatory Schools:*

PROFESSOR WILLIAM T. SEDGWICK, Massachusetts Institute of Technology,
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MR. WILLIAM ORR, JR., High School, Springfield, Mass.

2. *From the Association of Colleges and Preparatory Schools of the Middle States and Maryland:*

PROFESSOR E. G. CONKLIN, University of Pennsylvania, Philadelphia, Pa.

MR. OLIVER D. CLARK, Boys' High School, Brooklyn, N. Y.

3. *From the North Central Association of Colleges and Secondary Schools:*

PROFESSOR HENRY BALDWIN WARD, University of Nebraska, Lincoln, Neb.,
Secretary-Chairman.

MR. J. W. MATTHEWS, Principal of High School, Grand Rapids, Mich.

4. *From the Southern Association of Colleges and High Schools:*

PROFESSOR HENRY B. ORR, Tulane University, New Orleans, La.

MR. C. E. HARRIS, McDonough High School No. 1, New Orleans, La.

5. *From the American Association for the Advancement of Science:*

PROFESSOR ALPHEUS SPRING PACKARD, Brown University, Providence, R. I.

MR. FRANKLIN W. BARROWS, Central High School, Buffalo, N. Y.

6. *From the Department of Natural Science Teaching, National Educational Association:*

DR. CHARLES BENEDICT DAVENPORT, Harvard University, Cambridge, Mass.

PHYSICS

The Committee on Physics of the Science Department of the National Educational Association did not submit a regular report signed by the members of the committee. These were :

PROFESSOR E. H. HALL, Harvard University, *chairman*.

PROFESSOR H. S. CARHART, University of Michigan, Ann Arbor.

R. B. FULTON, Chancellor, University of Mississippi.

C. L. HARRINGTON, Sachs' Collegiate Institute, New York, N. Y.

JULIUS HORTVET, East Side High School, Minneapolis, Minn.

C. J. LING, Manual Training School, Denver, Colo.

PROFESSOR E. L. NICHOLS, Cornell University, Ithaca, N. Y.

E. D. PIERCE, Hotchkiss School, Lakeville, Conn.

PROFESSOR FERNANDO SANFORD, Leland Stanford Jr. University, Cal.

PROFESSOR B. F. THOMAS, Ohio State University, Columbus.

EDWARD R. ROBBINS, Lawrenceville School, Lawrenceville, N. J.

The basis of a report, suggested by Professor Hall, and consisting of a list of laboratory experiments, is given below. Comments by the members of the committee, in case they dissented from any part of this, were to be sent at once to the chairman of the Committee on College-Entrance Requirements. It may be assumed that the list met with the approval of those who did not so indicate dissent. Such comments as have been received are given after Professor Hall's statement.

OUTLINE OF LABORATORY WORK IN PHYSICS FOR SECONDARY SCHOOLS

At least thirty-five exercises, selected from a list of sixty or more, not very different from the list given below. In this list the divisions are mechanics (including hydrostatics), light, heat, sound, and electricity (with magnetism). At least ten of the exercises selected should be in mechanics. The exercises in sound may be omitted altogether; but each of the three remaining divisions should be represented by at least three exercises.

The division of the list into a first part and a second part is intended to facilitate and encourage beginning the study of physics very early in the school course. Most of the exercises in the first part have proved to be within the power of boys of fourteen or fifteen years, altho older pupils can do them more readily, as they can do all other work except tasks of pure memory. The cost of apparatus for the exercises of the first part is very small.

FIRST PART

PRELIMINARY EXERCISES

[Recommended, but not to be counted]

- A. Measurement of a straight line.
- B. Lines of the right triangle and the circle.
- C. Area of an oblique parallelogram.
- D. Volume of a rectangular body by displacement of water.

MECHANICS AND HYDROSTATICS

- 1. Weight of unit volume of a substance.
- 2. Lifting effect of water upon a body entirely immersed in it.
- 3. Specific gravity of a solid body that will sink in water.
- 4. Specific gravity of a block of wood by use of a sinker.
- 5. Weight of water displaced by a floating body.
- 6. Specific gravity by flotation method.
- 7. Specific gravity of a liquid : two methods.
- 8. The straight lever : first class.
- 9. Center of gravity and weight of a lever.
- 10. Levers of the second and third classes.
- 11. Force exerted at the fulcrum of a lever.
- 12. Errors of a spring balance.
- 13. Parallelogram of forces.
- 14. Friction between solid bodies (on a level).
- 15. Coefficient of friction (by sliding on incline).

LIGHT

- ✓ 16. Use of Rumford photometer.
- ✓ 17. Images in a plane mirror.
- 18. Images formed by a convex cylindrical mirror.
- 19. Images formed by a concave cylindrical mirror.
- 20. Index of refraction of glass.
- 21. Index of refraction of water.
- 22. Focal length of a converging lens.
- 23. Conjugate foci of a lens.
- 24. Shape and size of a real image formed by a lens.
- 25. Virtual image formed by a lens.

SECOND PART

MECHANICS

- 26. Breaking-strength of a wire.
- 27. Comparison of wires in breaking-tests.
- 28. Elasticity : stretching.
- 29. Elasticity : bending ; effect of varying loads.
- 30. Elasticity : bending ; effect of varying dimensions.
- 31. Elasticity : twisting.
- 32. Specific gravity of a liquid by balancing columns.
- 33. Compressibility of air : Boyle's law.
- 34. Density of air.
- 35. Four forces at right angles in one plane.
- 36. Comparison of masses by acceleration-test.
- 37. Action and reaction : elastic collision.
- 38. Elastic collision continued : inelastic collision.

HEAT

39. Testing a mercury thermometer.
40. Linear expansion of a solid.
41. Increase of pressure of a gas heated at constant volume.
42. Increase of volume of a gas heated at constant pressure.
43. Specific heat of a solid.
44. Latent heat of melting.
45. Determination of the dew-point.
46. Latent heat of vaporization.

SOUND

47. Velocity of sound in open air.
48. Wave-length of sound.
49. Number of vibrations of a tuning-fork.

ELECTRICITY AND MAGNETISM

50. Lines of force near a bar magnet.
51. Study of a single-fluid galvanic cell.
52. Study of a two-fluid galvanic cell.
53. Lines of force about a galvanoscope.
54. Resistance of wires by substitution: various lengths.
55. Resistance of wires by substitution: cross-section and multiple arc.
56. Resistance by Wheatstone's bridge: specific resistance of copper.
57. Temperature-coefficient of resistance in copper.
58. Battery resistance.
59. Putting together the parts of a telegraph key and sounder.
60. Putting together the parts of a small motor.
61. Putting together the parts of a small dynamo.

Professor Carhart suggests forty experiments similar to these. Twenty-four of these coincide exactly in title with items in the above list. The following fourteen are new, but many of them are probably implied in the list of sixty-one.

- The Jolly balance.
- Laws of the pendulum.
- Pressure.
- Curve of magnetization.
- Action of current on needle.
- Fall of potential in conductor.
- E. M. F. of cell.
- The tangent galvanometer.
- Velocity of sound in solids (Kundt).
- Law of length for strings (sound).
- Law of diameter for strings (sound).
- Law of tension for strings (sound).
- Law of reflection (light).
- Measurement of angle of prism (light).

PARTIAL LIST OF THOSE WHO HAVE ASSISTED IN THE
PREPARATION OF THIS REPORT

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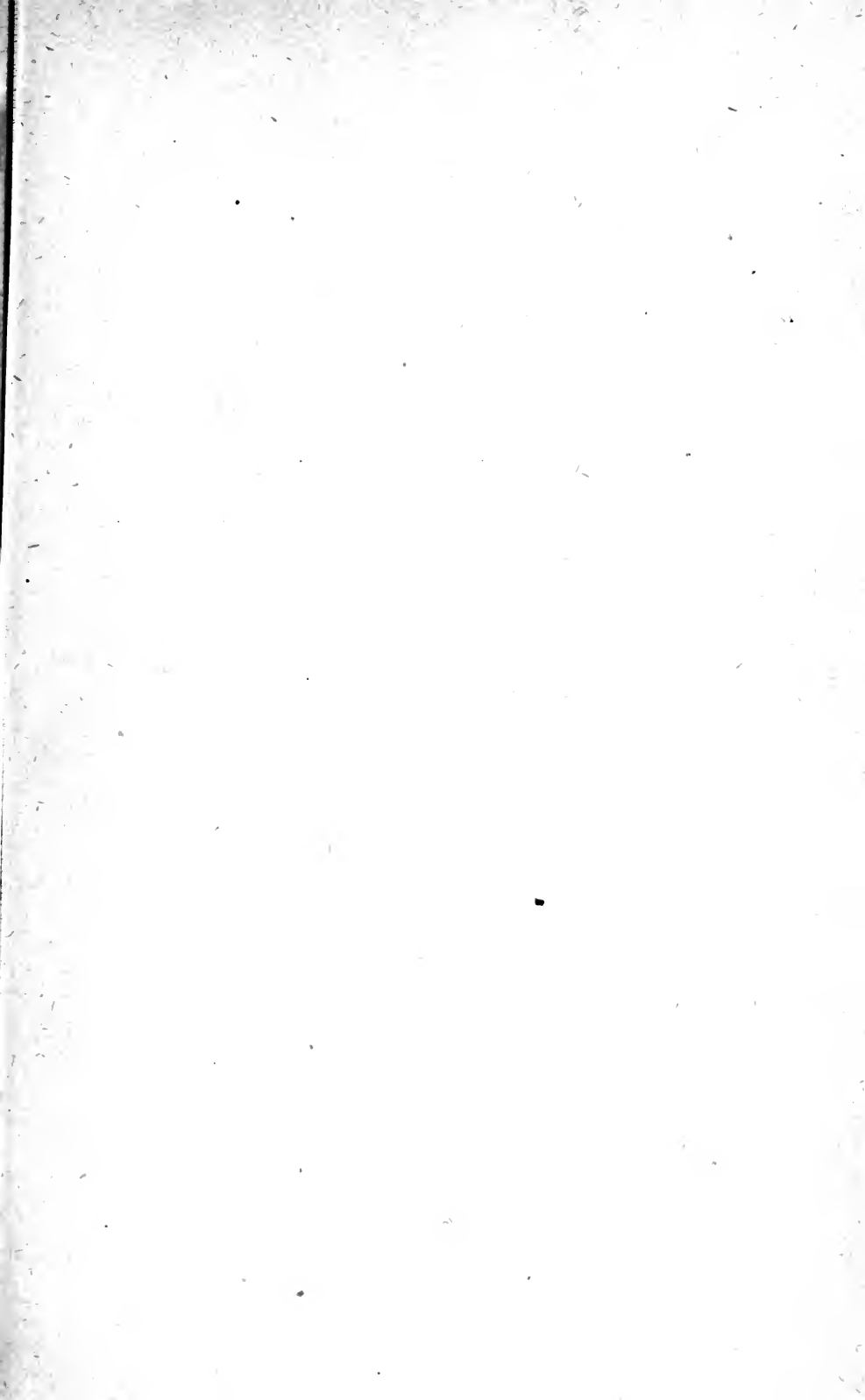
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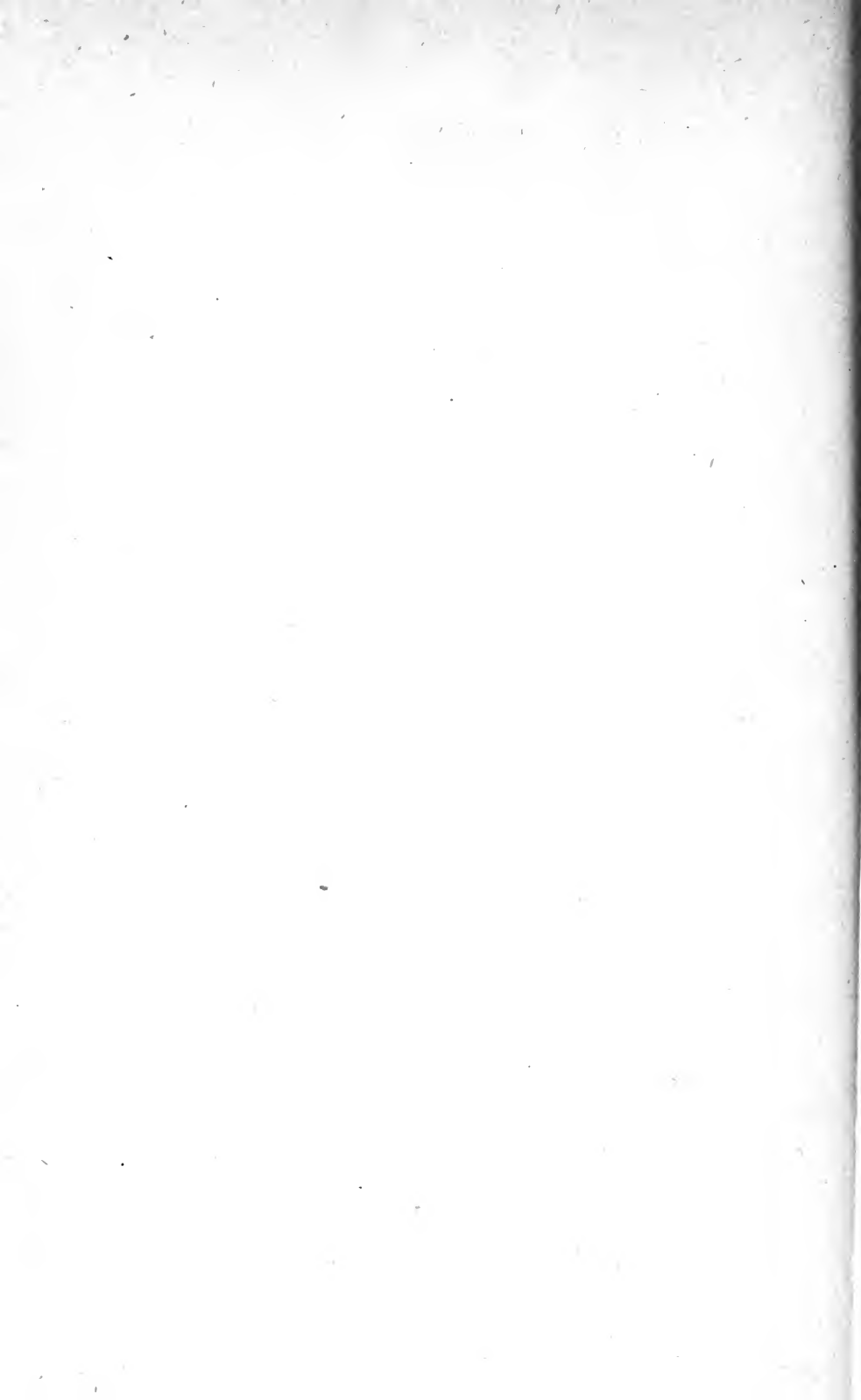
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